Textile World

A McGRAW-HILL PUBLICATION

SEPTEMBER, 1938

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TEXTILE WORLD (formerly *Textile World Journal*) with which are combined *Textiles, Posselt's Textile Journal and Textile Advance News*. Published monthly. United States and Possessions, and Canada, $3 per year; all other countries, $5, U. S. currency, or 20 shillings. Single copy 35 cents.

Of this issue 12,225 copies were printed

MEMBER OF AUDIT BUREAU OF CIRCULATIONS
MEMBER OF ASSOCIATED BUSINESS PAPERS, INC.

Contents copyrighted, 1938
by McGraw-Hill Publishing Co., Inc.

McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York, N. Y.

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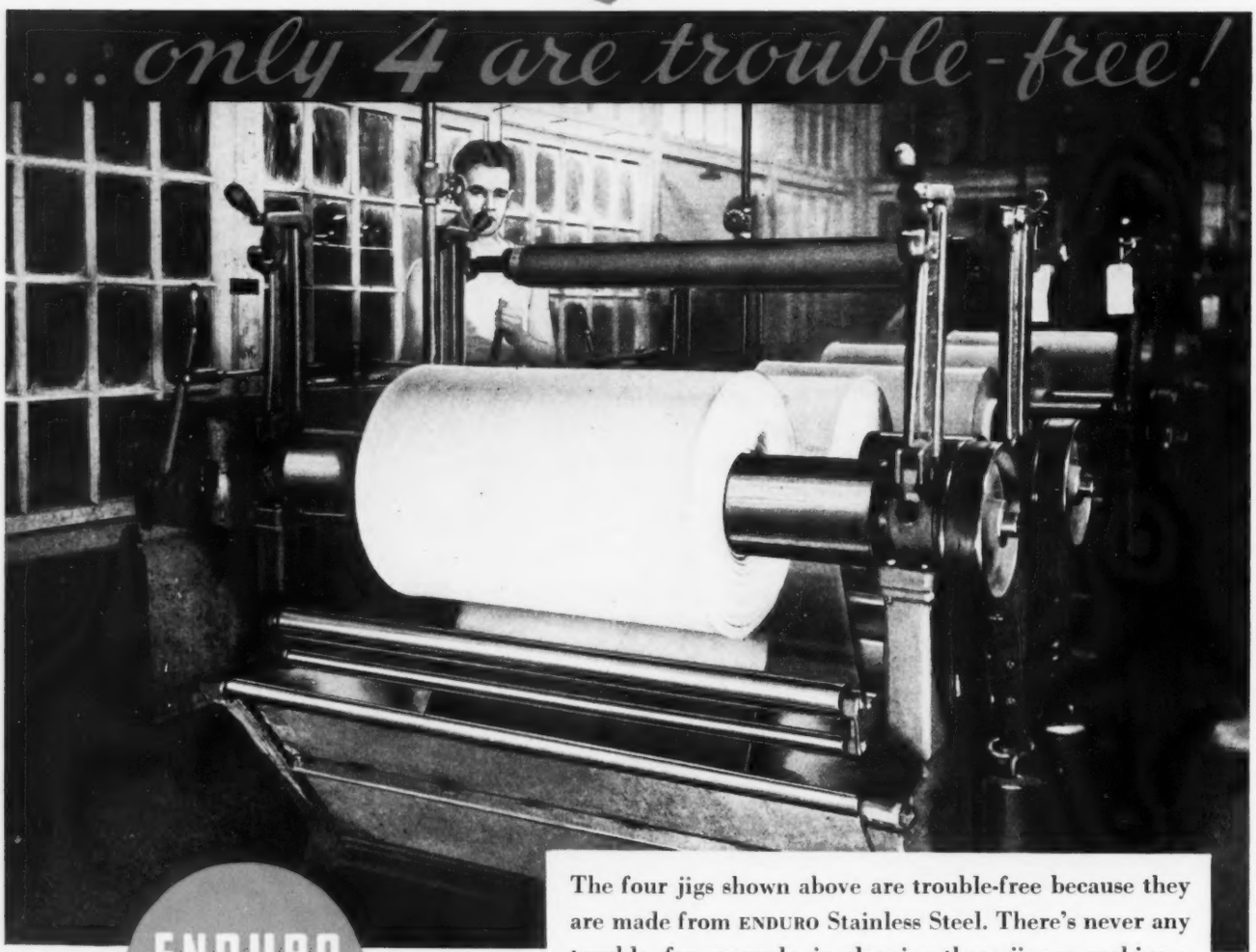

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Textile World

SEPTEMBER, 1938

DOUGLAS G. WOOLF, *Editor*

Making the Wage-Hour Act Work

ONCE again, the textile industry faces toward Washington. Whether any individual or group likes it or not, there *is* a wage-hour act and there *is* a wage-hour-act administrator. Therefore, what the industry wants most to know is how it can best cooperate with the administrator in the application of the act so that both employers and employees may profit most.

The important consideration is: What kind of a man is Elmer Andrews, the administrator of the act?

We have met him and have talked frankly to him. His outstanding characteristic is sincerity. No one can meet him even casually without being impressed by his desire to make this act an instrument for the good of industry and industry's employed personnel.

He is, very definitely, an ardent proponent of social legislation of the type of the wage-hour act. To us, that seems most fitting. It would be silly, in our opinion, to appoint an administrator who did not believe whole-heartedly in the act he was called upon to administer.

To some in the textile industry, however, this fact may arouse fears that Mr. Andrews is a starry-eyed reformer, like certain of the members of the National Labor Relations Board, and that he will sacrifice industry on the altar of social reform. We got no such impression from our talk with him. On the contrary, we gained the idea that he was most anxious to work with industry to the fullest extent.

If that is true, and we believe it is, it is now up to industry—and to the textile industry in particular—to cooperate with Mr. Andrews to the limit.

•

And so, where do we go from here?

Well, for one thing, we move once again into the question of jurisdiction. What branches are to be included in specific committees? That is the first headache. In fact, just the thought of that agony during NRA days must bring to many in the industry, even at this late date, all the sensations of a hang-over.

Not every branch will be happy about the initial alignment. However, we suggest to the industry that it give that set-up an ample trial. To Mr. Andrews, we suggest that he keep it entirely *tentative*, with the understanding—at least in his own mind—that he will make changes in the coverage of the committees when and if a fair trial makes such revision seem advisable. This, we believe, is of vital importance.

In fact we hope that flexibility will be the watchword of the administrator, not only now when everything is new and experimental, but later on when the temptation will be toward rigidity. In that direction lies the worst phase of bureaucracy. We are confident Mr. Andrews will avoid it. In return, we bespeak for him every possible form of cooperation from textile manufacturers and their associations, now and when the "dead cats begin to fly," as Mr. Andrews' predecessor in this exploration put it.

•

Some textile men are upset because this industry is once more Guinea Pig No. 1. We understand how they feel about it, but we think they are in error.

In the first place, textile manufacture is not put on the spot, merely because somebody in Washington has a grudge against it, as has been suggested. Nor have the leaders of the industry "betrayed" their fellows, as some men seem to think. Both those ideas are sort of silly—probably due to the heat.

The textile industry is Guinea Pig No. 1 because, first, it is a highly decentralized industry; second, wages are such a large part of the cost that wage-cutting is the main competitive background in the industry; third, unethical groups can ruin the industry by such tactics; fourth, ethical manufacturers have long desired protection; and, fifth, the industry through its associations has been such a good cooperator in past movements toward stabilization that a man launched on a new one automatically turns toward textile manufacture as a proving-ground.

Finally, there is one big thing which the industry can do to insure the successful application of this wage-hour act. We refer to our pet hobby: coordination of all branches of the industry either through amalgamation into an American Textile Institute, or through representation of existing associations on a joint council. That sort of an organization would be the very best means of solving the problems which inevitably will arise from time to time.

To repeat: Eventually; Why not now?

THE EDITOR SAYS

Facts, Not Guesses

"WHAT *proof* have you got that the textile industry is operating any more actively nowadays?" we were asked by a company which sells to textile mills. This particular company had recently fired its textile salesman, because pickings had been so meager in this field—and so naturally it was from Missouri.

We wish all questions were as easy to answer as this one is.

The proof is found in the statistics of consumption of the four major textile fibers from the low point of the year to date, insofar as data are available.

Cotton, wool and rayon reached their low in April, and silk reached its low in May. From those low points on, each branch of the industry improved monthly. Cotton consumption in July was 8% higher than in the low month, April. Wool consumption in July was 80% higher than in the low month, April. Silk consumption in July was 14% higher than in the low month, May. Rayon consumption in July was 90% higher than in the low months, April and May, and in fact the July rayon consumption represented an all-time high for any month in history.

August figures on fiber consumption will show further improvement.

And remember that this rise in activity has been *contra-seasonal*.

We should think that one salesman would be getting his job back—fast.

"There Ought to Be a Law"

THERE is no question that the textile industry loses its shirt because of its price policies. It yields periodically to a most amazing impulse to accept as many orders as it can *at a loss*.

Even when the trend of demand is upward, manufacturers seem unable to restrain themselves until prices reflect such improvement. Instead, they take losing orders on a rising market . . . . . Ask any print-cloth manufacturer; he has very recent experience to back up this statement.

However, it is never too late to learn. Even now, textile men can get the most out of the better times assured for this fall, if they will remember that the idea back of a sale was originally that a profit might be made.

"There ought to be a law" against the taking of unprofitable orders—and there will be some day. The zone of "unfair competition" will be broadened to include that practice. Meanwhile, it will be fine if textile manufacturers don't wait until they are forced by law to accept a profit. Maybe if they get the taste of it, they will find it isn't so bad after all.

"Bad Boy No. 1" Stuff

IN ALL our many contacts with the South, stretching back over 20 years, we have not found that southerners attempt to deny the existence of economic and social problems in their section. On the contrary, we have encountered an eagerness to discuss these problems frankly; our friends there are apt to take the initiative in that direction.

What they *do* object to, however—and we don't blame them a bit—is the attitude with which various groups have approached the "southern problem." There has been a mixture of political chicanery, well-meaning officiousness, and sectional envy which has made the psycho-analysis pretty hard to take. A little bit of this "Bad Boy No. 1" stuff goes a long way—and in fact too much of it might have the effect often noticed in school. The South might just *become* Bad Boy No. 1—and get tough. Once again, we wouldn't blame it.

As one who comes from, and has spent most of his life in, the Metropolitan New York area, we have no personal feeling toward one section or another. A New Yorker is usually a man without sectional pride. Consequently, we can look at the South as dispassionately as we look at the North. We have warm friends in both sections.

We have experienced a deep thrill as we have watched the economic and social progress of the South. In just those 20 years we mentioned previously, that progress has amounted practically to a transformation.

Since this is true, isn't it about time to forget this childish business about "investigating" the South, and about "rescuing" certain groups in the South from poverty? If any of the other sections really want to find some problem children over whom they can weep, they need not go beyond their own back-yards.

One more word: What we fear most, whenever this South-baiting springs up, is that it will revive sectional differences in the textile industry. Of all silly things, that is the worst. The industry has a common problem—North and South—and needs a united front. Northern and southern textile manufacturers have come to like each other personally and to respect each other as competitors. We hope that attacks on the South, instead of reviving intersectional bitterness, will muster northerners to the support of their southern friends.

A Story . . . and Its Moral

THE textile industry got a taste last month of one of the complexities of the new wage-hour act, and as a result learned the need for getting real facts before a step is taken.

Daily newspapers throughout the country broke out with scare headlines to the effect that several hundred youths between 16 and 18 were being dismissed in Gaston County (N. C.) mills because of a clause in the act supposedly making such action necessary by Sept. 23. For about 24 hours, wires burned between Washington and Gastonia. Here's the story:

The Southern Combed Yarn Spinners Association, in its weekly bulletin to its members, stated that "a few such minors" had been notified of pending displacement. This was a plain, and accurate, statement of fact.

This statement, however, was later coupled by a reporter for a press service with his own fingers on number of employees being fired—and an entirely erroneous inference was the result.

Through quick work, it was learned that the original action was based on a misconception of the act, and that youths between 16 and 18 did *not* have to be displaced. (See page 63.)

Credit for a good triple-play, clearing up this matter, goes to the Southern Combed Yarn Spinners Association for first giving the news of the situation, to the Cotton-Textile Institute for asking for a ruling on it, and to the Children's Bureau of the Department of Labor for its prompt and clear statement.

More important even than the particular point involved in this incident is the moral it carries: Hasty action, based on individual interpretation of any part of the new act, is dangerous. The industry is properly organized to tap official sources and get official opinions. Utilization of those sources will save many a headache.

NEWS OF THE MONTH

U.-K. Pact Nears Completion

Drafting has begun on the press notice to be put out when the reciprocal trade agreement with Great Britain has been signed, according to a statement from our Washington office. Only a few items remain unsettled, but signatures probably will not be attached before Sept. 15. The delay has been due to the fact that the items left until the last are always the most difficult. In fact, it is understood that previously the British had declined to consider the remaining items and had to be told quite bluntly that no unilateral decisions would be made as to what would and would not be considered. Now it seems likely that they will grant some of those items after all.

Rusts to Share Profits

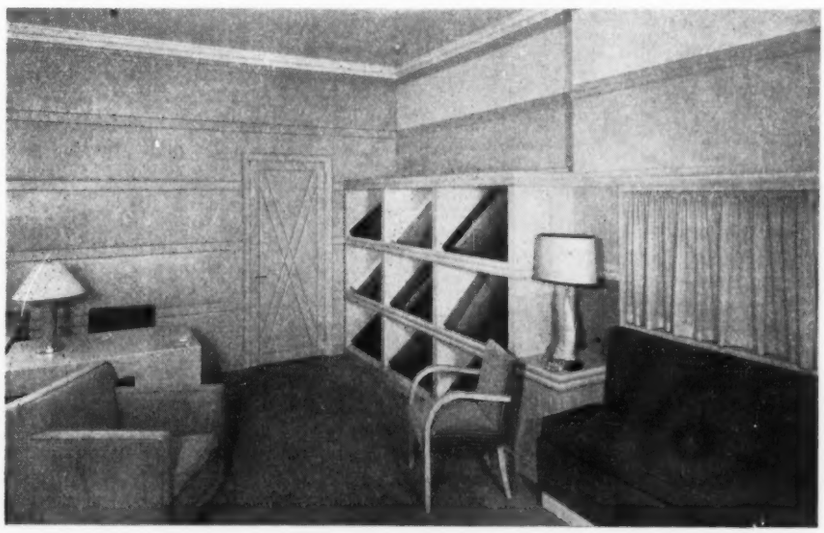
John and Mack Rust, co-inventors of a mechanical cotton picker, have announced the formation of the Rust Foundation to which they state they propose to apply a large part of their personal profit on the invention, to uplift agricultural workers of the South. The idea is that the Rusts would limit their own incomes from the pickers to 10 times that received by the lowest-paid employee. In other words, each of the brothers could earn up to $8.320 a year, and still pay the lowest-paid employee the experienced wage minimum of 40c. an hour set forth in the wage-hour act. Their statement added that all income which they personally realize from their invention, above the limited income set for themselves as noted above, would go to the foundation in an effort to make the picker "a blessing instead of a curse" to displaced labor.

The articles of incorporation said the foundation would "aid in rehabilitation of disemployed share croppers and farm laborers of the cotton-growing States; . . . and carry on experiments, research and educational work with a view to finding a permanent solution to our problems of poverty and unemployment, and, above all, to preserve and extend our civil liberties."

The Rusts plan to acquire a manufacturing plant in Memphis, Tenn., about the end of the year for production of machines on a commercial scale for the 1939 picking season. Assembly of half a dozen pickers for operation in the fields this year is being completed in the present plant.

Biggest Cotton Carryover in History

The biggest cotton carryover in the history of the United States was reported last month as of Aug. 1. It is 11,533,184 bales as compared with 4,498,848 bales last year. The largest previous carryover was 9,677,754 bales in 1932. This means that at least 25,000,000 bales of American cotton will be on hand at the beginning of the coming season. The situation is expected to result in a distorted futures market and high spot basis in the South. The price dropped to the point where a Government loan was mandatory. The figure set on Aug. 27 was 8.30¢. European consumption of American cotton is not expected to be good during the coming year by experienced cotton men. The Sept. 8 report forecast a crop of 11,825,000 bales.



A NEW ROOM recently planned and executed by David Ayers for L. C. Chase & Co., New York. The walls of this room are covered with Leatherwove, a coated fabric, both in direct application, similar to the method employed with wall paper, and also by upholstering. Tones of beige, tan, and cream are the predominating colors. The pedestal of the desk lamp is also covered with this material. Sanvale fabrics are used for the draperies, Seamloc carpet on the floor, and Velmo mohair upholstery on the built-in sofa and chairs—all Chase products. Fabrics on walls absorb distracting sounds and have a distinct place in business offices.

To Hold Spun-Rayon Symposium

A symposium on spun rayon and blended yarns will be a feature of the fall meeting of Committee D-13 of the American Society for Testing Materials, in New York, Oct. 19 to 21. The program includes the presentation of the following papers. "Rayon Staple Manufacture," by Dr. Francis Bonnet, of American Viscose Corp.; "Fabrication, Merchandising, and Construction of Spun Rayon and Blended Fabrics," by Alexis Sommaripa, manager of fabric development of the Rayon Division of E. I. du Pont de Nemours & Co., Inc.; "Processing of Spun Rayon and Spun Rayon Mixtures," by W. H. Cady, of United States Finishing Co.; "Test Methods," by Dr. Harold DeWitt Smith, of A. M. Tenney Associates.

Wage-Hour Clause Cleared

The textile industry has not been declared a "hazardous" undertaking and consequently it is not necessary for any employer to displace boys and girls from 16 to 18 years of age, according to a statement by Katharine F. Lenroot, chief, Children's Bureau, U. S. Department of Labor. This statement was issued after it became known that certain manufacturers in Gaston County, in North Carolina, had misinterpreted the "hazardous" clause of the act and had advised workers between 16 and 18 that they would have to lose their jobs.

Miss Lenroot explained that employment of this age group is not prohibited unless an occupation is found by the Children's Bureau to be particularly hazardous to the health or

well-being of youths between 16 and 18—and in any event would not be prohibited until a definite order was issued by the Bureau declaring such a hazard existed. No such orders have been issued nor will any be issued except after careful investigation and consideration. Full notice of such orders will be given before they become effective. In the meantime, Miss Lenroot points out, no employer need have any fear whatever that he is violating the clause by reason of the continuance of the employment of those between 16 and 18 years.

Why Gorman Quit

Francis Gorman, speaking before a conference of the Federation of Woolen and Worsted Workers of America, at Providence, R. I., last month, explained why he resigned from the Textile Workers' Organizing Committee, CIO affiliate, as noted in these columns last month. His principal objection was to the alleged high-handed attitude of the leaders of the TWOC in attempting to dominate textile union activities. He recommended that an executive council of the United Textile Workers of America, of which he is president, be designated to supplement the TWOC governing board of seven, now allegedly without a single textile-worker member—in directing CIO activities in the textile industry.

Mr. Gorman stated that, although the TWOC is facing a national schism, he does not intend for the present at least to attempt to lead UTW members back into the American Federation of Labor. Rather, he said, he hoped to restore textile workers to control of the TWOC through re-establishment of the various autonomous federations.

"Unless the policy is changed," he said, "we will get worse and worse, so far as organization is concerned. If I can't bring about the change with the governing board, then there is nothing to do but appeal to the workers."

Engineers Plan Fall Meeting

Four papers on textiles will be presented on Thursday, Oct. 6, during the fall meeting of the American Society of Mechanical Engineers, Oct. 5 to 7, at the Providence-Biltmore Hotel, Providence, R. I. Papers and authors are as follows: "Worsted System Spinning, Including Spinning of Rayon Fibers," by George F. Bliss; "Merchandising of Spun-Rayon Fabrics," by S. J. Kennedy; "Weaving," by Albert Palmer; "Development of the Shearing of Textile Fabrics," by Ralph L. Marble.

FSA Homesteads to Run Hosiery Mills

The Farm Security Administration, U.S. Department of Agriculture, announced Aug. 31 that homesteaders at Cumberland Homesteads, Tenn., Red House Farms, W. Va., and Skyline Homesteads, Ala., have accepted a proposal by Dexdale Hosiery Mills, Lansdale, Pa., to operate silk throwing plants and hosiery mills on the three projects. Operating companies, jointly owned by the homestead association and the hosiery company will construct and operate the plants.

Textile Men Meet on Management

Prominent textile industry executives will participate in the program of the Seventh International Management Congress, the first to be held in America, at Washington, D. C., Sept. 19 to 23. Among those contributing and their subjects are: Henry P. Kendall, president, The Kendall Co., "The Constituents and Functions of the Administrative Group," and Robert R. West, president, Riverside & Dan River Cotton Mills, "Opportunities for Executive Development and Advancement."

Col. G. Edward Buxton, president, New England Industries, Inc., will preside at the technical session Sept. 21, when there will be discussion of the papers on "Executive Personnel Administration." H. L. Bailey, president, Wellington Sears & Co., is chairman of the textiles group of the commerce and industry committee for the coming congress, which is headed by Lewis H. Brown. Other textile executives serving on committees in preparation for the five-day program are: Franklin W. Hobbs, president, Arlington Mills; Victor Bowman, general sales manager, Mohawk Carpet Mills; Robert Amory, president, Nashua Mfg. Co.; Mr. Kendall, and Mr. West.

FANCY SPUN RAYON and cotton swag drapery fabric featured by F. Schumacher & Co., New York, is shown in newly decorated dining-room of Hotel Madison, New York. Fancy bouclé yarn is used to form loose swag effect, alternating with closely woven vertical bands.

Dyers and Union Sign Contract

Two constructive measures in the silk and rayon dyeing and printing industry last month were the signing by shop owners and union officials of a new contract to replace the one which expired Sept. 1, and the formation of the Dyers & Printers Employers' Association, an organization chartered to "deal collectively with labor problems in the Passaic Valley." The new one-year contract, which is a compromise between pacts originally proposed by the owners of silk and rayon finishing plants and by the Federation of Dyers, Finishers, Printers, and Bleachers of America, is patterned along more flexible lines than the former agreement and calls for the organization of a joint administrative board made up of employer and union representatives. Wage and hour provisions remain the same.

European Chemists Conclude Tour

Following a two week's tour of the textile centers of the United States, a group of about 60 members of the International Association of Color Chemists from 10 European companies were guests at a joint meeting of the American Association of Textile Chemists & Colorists and the American Association of Textile Technologists, held Aug. 16, at the Chemists Club, New York. Louis S. Zisman, of the A.A.T.C.C., and Dr. Joseph F. X. Harold, of the A.A.T.T., welcomed the delegates in behalf of the respective associations. Henry F. Hermann of General Dyestuff Corp., acted as toastmaster. Marcel Melliand, publisher and editor of the *Melliand Textilberichte* and leader of the visiting group, expressed the appreciation of the guests for the cordiality which they had received during their visits to textile plants in this country and urged American textile men to make similar visits to the textile centers of Europe.

Other speakers included Dr. Egon Eloed, professor at the Technical High School of Karlsruhe, Germany; Count Giovanni Treccani of Lanoficio Rossi, Milan, Italy; Oscar A. Geier,

of Richards & Geier, New York; Werner von Bergen, of Forstmann Woolen Co., Passaic, N. J.

On the following day, before leaving for Europe, the technologists were guests of the Aridye Corp. at a special meeting at which the new Aridye printing process was described. Among the plants visited by members of the group were Gotham Silk Hosiery Co., Fitchburg Yarn Co., Malina Dyeing Co., Cluett Peabody Co., Pacific Mills, Joseph Bancroft & Sons, Co., Berkshire Knitting Mills, and Narrow Fabrics Co. Other visits were made to General Dyestuff Corp., Proctor & Schwartz, Massachusetts Institute of Technology, Mellon Institute, and International Business Machines Corp.

Simpler Silk Rules Sought

Simplification of the proposed trade practice rules for the silk textile industry was asked by the National Federation of Textiles in a statement filed with the Federal Trade Commission last month. Main recommendations were for elimination of misleading trade names in labeling, equality of treatment for silk and rayon wherever practical; the rule restricting against use of more finishing than necessary was supported as "a sensible and desirable safeguard."

Italy As a Wool Goods Exporter

A monograph on the Italian woolen and worsted industry is being distributed by the Italian Chamber of Commerce in New York. Among the interesting points the booklet discloses is that in 1937 Italy was outranked in volume of wool goods exports only by Great Britain and that almost one-third of the Italian output finds its market outside of Italy. The Italian industry operates 580,000 woolen spindles, 653,000 worsted spindles, and 21,000 looms, employing some 90,000 workers. Output is estimated at about 160,000 yd. annually.

Plan Final Appeal of "Ringless" Decision

The determination of Julius Kayser & Co., and Textile Patents Corp. to seek a U.S. Supreme Court ruling in the long-contested "ringless" hosiery legal battle was disclosed last month when attorneys for these firms took preliminary legal steps in the Philadelphia Courts. The U.S. Circuit Court of Appeals has invalidated the

THE WINTER WEAR possibilities of Teca, the new crimped spun acetate rayon yarn, offered by Tennessee Eastman Corp., are illustrated in this two-piece knitted suit. In promoting the new yarn, the company states that "Teca knits look like wool but feel like silk; do not crush, sag, stretch or shrink."

Chas A. Kaufman "ringless" hosiery patents; filing of mandate was delayed 30 days at request of the Kayser attorneys who explained that they planned to seek a Supreme Court review and would ask for a writ of certiorari which is the requisite step to such a review.

European Draperies Largely Spun Rayon

An extensive collection of decorative fabrics assembled in Europe this summer by E. Raymond Hahn, head of the drapery division of Wellington Sears Co., New York, will be the inspiration for that firm's new spring lines of drapery fabrics and dress goods for the converting trade. The most novel fabrics in the collection come from Sweden, and Mr. Hahn rates the Danish designers as a close second. The collection also includes fabrics from England, Germany, France and Italy.

Textural effects are outstanding, and for the production of such effects chenille yarn and a wide variety of novelty yarns are most important elements. It is believed that the American market is ripe for fabrics recreating distinctive handicraft effects.

Among the fancy yarns are particularly notable those having corkscrew twists which when brought to the surface of the fabric give a shagginess to decorative patterns and stripes. There are instances of use of extremely heavy yarns, some with very little twist that approximate a roving and others of compound twist which resemble cords and twines. A number of the fabrics contain hemp yarn to lend stiffness. Satins and velvets appear in the collection, but nearly always in fancy variations or as part of surface patterns. Fine cellophane yarns are introduced in some numbers.

N.A.C.M., Oct. 6

The annual convention of the National Association of Cotton Manufacturers will be held at the Copley-Plaza Hotel, Boston, Mass., Oct. 6.

Yarn Rules Approved

Members of the Carded Yarn Group met recently in Charlotte, N. C., and ratified the previous action of the executive committee in approving the 1938 Cotton Yarn Rules. A meeting of the Southern Combed Yarn Spinners Association, for the same purpose, was scheduled for Sept. 8.

Carolina Yarn Association Meeting

A record attendance is expected at the annual get-together of the Carolina Yarn Association at Pinehurst, N. C., Oct. 28 and 29. Ray Weaver, who has charge of the entertainment, has promised some pleasant surprises. At the banquet, Saturday night, 70 or more prizes will be awarded the successful contestants in the golf tournament and skeet shoot. These contests will be under the management of W. T. (Buck) Cheatham and Joe Mason, respectively. S. L. Diggle, of Charlotte, is association president.

Industrial Enters Rayon-for-Tires

The increasing importance of the tire industry as a market for rayon yarn was indicated last month, when Hiram S. Rivitz, president, Industrial Rayon Corp., Cleveland, announced that special rayon cord for use in tire construction would be made in the firm's new plant at Painesville, Ohio. He added that he had been asked by several tire firms to install the necessary equipment to make rayon for this purpose.

Tufted Bedspread Makers Organize

At a meeting on Aug. 20, sixty bedspread manufacturers from Georgia, the Carolinas, Tennessee and other States, met in Dalton, Ga., and established the Tufted Bedspread Manufac-

turers Association. It is said that the organizing group represents more than 70% of the nation's bedspread makers. W. P. Fickett, who is president, Textile Fabrics Association, New York, has been named executive secretary-treasurer, and O. C. Moore is the elected president of the association.

To Share World Wool Promotion

The International Wool Secretariat, of London, England, the cooperative organization of Australian, New Zealand and South African wool growers, has proposed to the Associated Wool Industries, New York, that it take over the former's publicity work on wool promotion in the United States. It is understood that the relationship will be cooperative and not financial. The Secretariat recognizes that a job is already being well done in promoting wool in this country. It plans to set up a Paris bureau for dissemination style information.

Army Tries Slate Blue Uniforms

The War Department is making a field test of a slate blue woolen uniform to settle the question whether or not such a new uniform cloth should be adopted by the Army. It is said that the idea is to combine a color suitable for wartime service with one suitable also for garrison wear. The present olive drab fabric has been found a shade difficult to match.

A.A.T.T. Meeting Plans

Roy A. Cheney, managing director of the Underwear Institute, and Edward R. Schwarz, professor of textile engineering at Massachusetts Institute of Technology, will speak at the September and October meetings, respectively, of the American Association of Textile Technologists, in New York, it is announced. Mr. Cheney will discuss "Truth in Fabrics," at the meeting Sept. 14; and Prof. Schwarz will speak on the relationship between fiber structure and yarn and fabric structure on Oct. 5.

U. S. Wool Clip Up

Bureau of Agricultural Economics estimates 1938 U. S. wool clip at 368,528,000 lb., about 2,000,000 lb. over last year and about the same over 5-year average.

Cottons Erratic But Trend Is Up

August was a typical month in cotton textiles. Manufacturers, particularly of print cloths, became increasingly downcast as the month wore on and business showed signs of drying up completely. The bearish cotton report, unfavorable securities market, and increasing inventories combined to depress what a few weeks previously had been an up-and-coming market. Then, toward the end of the month there was a sudden spurt in both sales and prices. Over 20,000,000 yd. of print cloths changed hands in two days at improved prices. Although the month closed slow and indications were that business would more or less hang fire until after the Sept. 8 crop report, consensus was that there would be a gradual improvement from then on, especially in the last quarter.

Shrinkage Rules Apply to Garments

At a conference, held Aug. 24, in New York, Henry Miller, assistant director of fair trade practices of the Federal Trade Commission, explained that the shrinkage rules, promulgated June 3, apply to garments, as well as to piece goods.

Report Rayon Price Rise Pending

Rayon yarn sales were rolling up to surprising totals through August, and the strong seller's position that prevailed lent some weight to reports that a price advance was in the offing. Chief obstacle to such a move, observers felt, was weakness in the goods market. Certain yarn leaders insisted that weavers had not yet fully digested the last rayon rise. *Textile Organon's* August index figure, 895, set an all-time high record for rayon consumption.

1939 to Bring Boost in Rayon Men's Wear

Current market discussions of rayon's 1939 prospects stressed the outlook for increased use of spun rayon in men's informal wear. While spun rayon already has made much progress there, it is felt that the surface hasn't been scratched; steady expansion through summer suitings into between-seasons suits, and, especially, expansion in the polo shirt, slacks and sportswear field, is looked for this fall, with further increase into 1939.

Tropicals Open at Low Prices

Tropical fabrics for men's wear were opened shortly after the middle of August. Compared with a year ago there are reductions of 30 to 40c. per yard for these goods. New prices on the American Woolen Co.'s line range from $1.10 to $1.65 for cloths which last year brought from $1.45 to $2.05. Of course, this price difference has been twelve months in the making.

Wool Goods Seasonally Quiet

Although mill operation continues on a fairly satisfactory basis in the woolen and worsted field, new orders slowed down considerably during August and sellers have been hoping for a pick-up after Labor Day. Prices are firm at the advance levels of July. Buyers want prompt deliveries only.

Men's wear spring 1939 openings are expected to come along after Sept. 15, and prices should be attractive compared with a year ago, because of the decline in wool over that time. Men's wear interest centers on chalk stripes, and there is wide-spread acceptance of various shades of green.

Women's wear business is also in a lull with likelihood of turning active again later in September. There is comment on a revival of interest in women's wear worsted dress goods.

Fabric Demand Up Contra-Seasonally

Rayon and silk fabrics both sold more actively through August than is normal for that month; price status was uneven; some goods were going below market but there was decided firmness among the popular rayons, especially pigmented taffetas. Spun rayons sold at a lively pace. Velvet buying dominated in silk field.

Knit Goods Hold Their Own

Hosiery, underwear and outerwear markets maintained in August the improved position reported in July; while some were disappointed at no further gains, general position was considered satisfactory. Production is being accelerated, but very cautiously.

Problems—How to Solve 'Em

Practical problems facing hosiery manufacturers in case of a strike or a hearing before the National Labor Relations Board, will be analyzed by the Southern Hosiery Manufacturers Association, Asheville, N.C., Sept. 17. Announcing the program of the convention, T. R. Durham, executive secretary, said part of the gathering would be devoted to giving manufacturers guidance on how to handle difficult labor situations when they arise.

Hosiery Sales Down

July, 1938, hosiery shipments totalled 8,537,713 doz. pr. or 11.6% below the previous month and 9% below July, 1937, National Association of Hosiery Manufacturers announced; total 1938 shipments (first seven months) were 6.4% below 1937, 6.5% above 1936 and 16.4% above 1935. Meanwhile it was reported at the annual meeting, Full-Fashioned Hosiery Manufacturers of America, Inc., held in Philadelphia, Aug. 30, that August operation of full-fashioned equipment in Philadelphia was 70% of capacity against 60% a few weeks previous.

Wool Tops Level Out

After closing the month of July at 82½c., spot tops on the New York Top Exchange eased slightly on reduced trading and carried through the month of August on the basis of 81c. Weekly totals for business was the smallest for some time, which reflects the slowness of business in the domestic raw wool market.

Dressmaker Swim Suit Demand Off

Chief post-mortem comment about the bathing-suit season centered on dressmaker suits which suffered a bad slump in closing weeks; prices fell so sharply that numerous firms lost money. Curtailment of this line for 1939 was forecast.

Silk Price Drop Called Seasonal

While silk market tone was strong in August, this optimism was not enough to offset seasonal weakening and raw silk price, crack double extra 13/15 white 78%, fell from $1.84 on July 25, to $1.72 on Sept. 7.

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This and That

Alexander Smith & Sons Carpet Co., Yonkers, N. Y., will terminate its ten-year association with W. & J. Sloane, its selling agent, on Nov. 1. The company will thereafter sell direct. It will also merchandise the line of C. H. Masland & Sons, Carlisle, Pa. The trade is wondering whether the return to independent selling by the Smith organization means the return also of the auction system.

Arlington Mills, Lawrence, Mass., are planning to identify their products by labels featuring the brand "Arlingcrest". Advertising announcements of this brand will stress the quality built into the yarn and fabric through careful manufacturing processes.

American Woolen Co. has leased space at 40 Worth St. for its blanket division. George J. Swift in charge of the blanket department will be located at that office.

The American Woolen Co. advanced prices on its gabardines, 10c. early in August. Range 6400 was priced at $1.55. This is the same figure that was continued for the spring and summer season of 1939 when fabrics for that season opened on Aug. 23.

The annual meeting of the Piedmont Section, A.A.T.C.C. will be held Oct. 8, at the Hotel Charlotte, Charlotte, N. C.

The United States Testing Co., Hoboken, N. J., hereafter will test fabrics made of Snia Viscosa spun rayon, it is announced by Meyer & Marks Yarn Co.

Ain't Science Stupid?

Gold gowns and pineapple "silk" don't help Marse Henry a bit

By JACK CARD

SOMETHING ought to be done about them scientists. Don't they read the papers? Haven't they heard that Marse Henry Wallace is trying to eat the cotton crop? And yet they come along with a discovery of gold evening gowns which will last forever. "Light as silk, cheaper than the costlier fabrics now sold in fashionable stores," and so on ad nauseam.

The irony of the whole thing is that the discovery by which gossamer fabrics can be covered with a film of gold less than one ten-thousandth of an inch thick came in the course of research to find compounds of gold with organic molecules for the treatment of arthritis. How about Marse Henry's nervous breakdown? Isn't anybody going to do anything about that? Must he dictate quotas on gold, too? He probably wouldn't mind, but that's the other Henry's realm. Mr. Morgenthau might cite Mr. Wallace for hoarding gold—and wouldn't that be something?

However, onward with science. We see by the papers—in fact we think we saw it in the editorial column of this publication—that the pineapple "now bids fair to become a strong, though not the only, competitor of the hard-working silk worm, a way having been found to convert its fibers into 'silk'." The same item added, almost hysterically, as TEXTILE WORLD noted at the time, that "invention has become so ingenious converting plant life into serviceable cloth that it would occasion only mild surprise to learn that a good quality of sandpaper is made from spinach."

Speaking of spinach, Elizabeth Hawes seems to have made a good thing out of that obnoxious weed. Her book, "Fashion Is Spinach," still sticks up among the best sellers. Again we read by the papers that she recently presented her ideas of spinach (pardon us, fashion) in a revue. The central showing of the men's creations revolved on a double theme: Old Russia and I Love Suspenders. . . . It just doesn't seem worth while reading any more of that particular item.

Speaking of pineapples, a still fruitier fruit—the banana—is going to be woven into men's shirts, according to our infallible source of information, the daily press. Cocoanuts, also—but that's a nut, not a fruit, isn't it—or is it? This same priceless newspaper item says that "Miami's semi-tropics have also inspired high color tones such as tangerine, yellow, copper and hibiscus for men's wear." Now understand we don't *say* that tangerines and hibiscus are going to add to Marse Henry's troubles. We're merely giving you what we read in the papers.

Soy beans are to produce a fiber to be used in the production of webbing in automobile construction, whatever that means. . . . Cow's hair is to produce a new textile fiber for mixture with wool. . . . Cactus plants and Rumanian weed are being used for the production of cellulose. . . . Brewers' grains are dried and squashed and then used for the manufacture of pulp, in turn to be converted into fiber. . . .

And here's something else, sent to us by a friend who wants to remain anonymous (and we don't blame him). (Incidentally a brief pre-view of this drama also appeared in TEXTILE WORLD): A farmer in Oklahoma decided that a tonic was needed to make his cotton plants hold all their blooms. Okra was found best for cross breeding. So-o-o-o, fields of cotton and okra were planted. Early each morning, the farmer (why be secretive, his name is Webb) carefully plucked a cotton bloom and placed it into the okra bloom, placing the organs of each into a position so the cotton would breed to the okra. The next year the bloom from the cotton-shaped okra was placed into the common cotton bloom and this produced the okra-shaped cotton boll. Then the bloom of this was placed into the bloom of the Pima cotton bloom—a long staple cotton (don't blame us; we're quoting). And the next year this common-cotton-okra-pima-cotton seed was planted, and here Farmer Webb received his reward. The stalks were from four to seven feet tall and had from 150 to 250 blooms, and each produced from five to 10 times as much as common cotton. Common cotton, okra, pima cotton, SUPER COTTON. . . . Oh, shucks, we're blushing.

* * *

Soft music, please.

And Old Marse Henry sits alone in his spacious office, gazing out into the spaces of his spacious office, issuing quotas on cotton, gold, pineapples, bananas, cow's hair, soy beans, suspenders, spinach. . . .

Ain't science stupid? Ask Marse Henry; he knows.

Still Going Strong

Textile markets continue to improve, despite temporary shocks in cotton

AS COTTON GOES, so goes the textile industry. That statement is probably as inexact as is the political saw about Maine, from which it is paraphrased. Nevertheless the psychological effect of a depressed or booming cotton-textile market upon the industry as a whole is something very tangible.

On this basis, textiles came in for all kinds of weather last month: early stagnation in sales; then the first Government crop report with its bearish indication of a yield much larger than anticipated; and finally a sudden spurt in sales to a volume totaling about 20,000,000 yd. of print cloths in two days.

This dramatic shift produced an immediate change in sentiment. For example, our southern editor reported to us, on Aug. 20: "The attitude of many southern manufacturers of print cloth has again become pessimistic with reference to current market conditions." On Aug. 27, he wrote: "It is needless to say that the sentiment of print cloth manufacturers has changed for the better within the last few days."

It doesn't take many days of good business to make a cotton manufacturer happy.

However, that branch of the industry is not letting itself go ga-ga. The following further comment from our southern editor reflects the restraint which the events of the last year have brought to businessmen:

"Manufacturers (of print cloths) are not unduly optimistic but seem to think that sales and prices will gradually improve as the fall wears on. Present prices, even with the recent slight improvement, are still very unprofitable. . . . . The consensus is that the fall should see gradual improvement, with possible interruptions brought on mainly by the tendency to pile up goods. . . . . Print cloth stocks are still rather large. However, stocks in finishing plants, retail stores, and the like are said to be low and sooner or later will have to be replenished. Incidentally, the salesmen calling on textile mills are in much better spirits than they were a couple of months ago and look forward to some good business this fall."

So much for cotton. In wool goods, September will be the crucial month. Our wool market editor reports that mills are operating at a fair rate after the June-July revival of business, but will need at least an average September to avoid curtailment. Corroborating this is the report of our New England editor: "Woolen and worsted mills are filling back orders, and if a pick-up in new business comes in September the improvement will be continuous for some time."

These hopes center on two sources of new business: possibility of reorders on fall goods, and the opening of the spring 1939 men's wear season, expected during the last two weeks of this month.

In rayon, a very active call for yarn prevailed during most of August, while movement of rayon fabrics was above normal for the month, with prices correspondingly firm. Tone of raw silk market has been good, and consumption on the high side. Silk fabric position has been fair.

On the processing end, cotton finishers were fairly active in August and expected to continue so through September. At least a temporary solution of the labor difficulties in silk and rayon finishing helps the outlook there.

A Cross-Section Survey

Of particular interest to textile manufacturers was the cross-section survey of industry conducted last month by George A. Sloan, chairman of the Consumers' Goods Industries Committee, and former president of the Cotton-Textile Institute. The industries surveyed are ordinarily those among the first to feel or sense any change in the public mood.

"These reports," said Mr. Sloan, "reflect an eagerness on the part of business to find a justification for renewed confidence and to discern the signs for the way up and out. However, they also show the delicacy of the situation as it still exists. They point to some definite improvements in demand and production and more especially in morale. A situation of this kind feeds on encouragement. By and large these reports present evidence of hope and expectation rather than any material realization. This feeling and expectation of betterment is an essential of actual improvement. It must be preserved. If it can be, it may well prove a forecast of substantial accomplishment."

The textile opinions included in Mr. Sloan's report follow:

Claudius P. Murchison, president, Cotton-Textile Institute: Outlook improved. Current situation as regards unfilled orders, inventories and prices, represents quite a step forward from the picture a few months ago. Believe increased buying is for the purpose of taking care of actual consumption requirements. Retail inventories generally on comparatively low levels.

Arthur Besse, president, National Association of Wool Manufacturers: Definite improvement in recent weeks but unable to find indication that improvement is to be attributed to actual consumer demand. Most improvement in women's wear where style element has prevented accumulation of inventories. Retail establishments, because of uncertainty, put off normal buying. Now obliged to come into market to fill void.

G. H. Conze, president, National Federation of Textiles: Initial budgets for buying of fall merchandise have increased 25% over what was planned two months ago by all types of buyers. All of this shows a great deal of confidence in the future, but in our industry does not as yet represent actual increase in consumer demand. Very low inventory position which should insure profitable business for the industry until October.

C. W. Dall, president, National Rayon Weavers Association: Substantial increase in orders during the first two weeks in July for staples and linings. Prices not yet to a point where there is a margin of profit. Reasonable to expect good movement this class of goods for fall and early winter. Tremendous inquiry indicating wide distribution for fall.

Earl Constantine, president, National Association of Hosiery Manufacturers: Shipments of hosiery first five months this year 9% higher than similar period 1936, with stocks only 4.7% higher. We anticipate shipments 1938 will exceed 1936, which we regard as measuring stick for gauging current business. 1936 was best year since 1929.

Herbert L. Gutterson, president, Institute of Carpet Manufacturers of America: Greater confidence that improved business conditions are ahead. July and August are quiet months due to seasonal nature of selling, but universally considered in our industry that there will be real improvement in the fall.

Roy A. Cheney, managing director, Underwear Institute: April, May, June and July show steady improvement in our industry. Believe this represents consumer buying and not speculating. Expect that heavy-weight merchandise for fall will be better than anticipated several months ago. We also anticipate splendid forward buying of light-weight merchandise for next spring delivery.

Guinea Pig No. 1

Textile industry first on wage-hour operating-table, repeating NRA experience

From TEXTILE WORLD'S *Washington Office*

IF ultimate determination of minimum wage rates for the textile industry is going to be a fairly simple task, as Administrator Elmer Andrews believes, he is finding the make-ready anything but simple. It did seem, for a few days, as though he would walk right away with "definition" of the industry and his committee appointments. Cotton, rayon, and silk readily agreed to keep company under the same tent. Woolens and worsteds agreed to stay out. But then knitted underwear and outerwear decided they wanted to be in and Mr. Andrews' trouble began.

The administrator called an informal meeting of interested parties for Aug. 30. He issued a statement inviting eleven representatives of textile companies and labor to attend. Before the meeting, however, he expanded his invitation list, either voluntarily or by request, to include 20 people as follows:

Earl Constantine, president, National Association of Hosiery Manufacturers; Roy A. Cheney, managing director, and F. E. Simmons, research director, Underwear Institute; G. H. Conze, president, and Irene L. Blunt, secretary, National Federation of Textiles, Inc.; J. K. Watson, counsel, Cotton-Textile Institute, Inc.; Taylor R. Durham, executive secretary, Southern Hosiery Manufacturers Association; W. P. Fickett, president, Textile Fabrics Association; H. H. Cohen, executive secretary, Philadelphia District, National Knitted Outerwear Association; Meyer B. Eliasoph, executive secretary, Allied Underwear Association; T. H. Mueller, vice-president, Julius Kayser & Co.; C. L. Pillsbury, secretary-treasurer, Munsingwear, Inc.; Wm. Ravner, president, Warvern Knitwear Co., Inc.; Sidney Hillman, chairman, John Abt, counsel, and Sol Barkin, research director, Textile Workers Organizing Committee; Emil Rieve, president, American Federation of Hosiery Workers; H. A. Schrader, International Association of Machinists; Samuel Shore and F. F. Umhey, International Ladies Garment Workers Union.

This group held closed session in an air-conditioned Labor Department committee room from two o'clock till five. Mr. Andrews then issued a statement summarizing the discussion. He said, "At this afternoon's preliminary meeting to discuss the scope of a proposed Industry Committee for cotton, rayon, and silk textiles, the principal point of discussion was the inclusion or exclusion of underwear (meaning knitted underwear). It was argued that because a large proportion of knitted underwear is in competition with underwear made from woven material, underwear should be included in the scope of the proposed committee's work, possibly with approximate wage classifications (evidently meaning with wages approximating those of cotton, rayon, silk). On the other hand, it was argued that the cutting and sewing of underwear was a garment manufacturing process."

"Not" or Not a "Not"?

Knitted underwear representatives, interviewed by TEXTILE WORLD after the meeting, said that the statement should have read . . . "because knitted underwear is *not* in competition with underwear made from woven material . . . " That was their argument, they said, and the administration office had inadvertently misstated it. Mr. Andrews had only two or three employees during these difficult days, trying to get started on an enterprise that will require a staff of several hundred workers. Letters pour into his office by armloads, and job hunters and people on business come in droves. Some of both classes are abusive, all are persistent. No wonder things got mixed up a bit. The Labor Standards Division started off without help so that the administrator himself could pick his staff. And if so many people had been hired before it was time to start work, the extravagance would have been criticised.

Some of those who attended the meeting said they thought the knitted underwear people were over-concerned about getting into the textile group. However, the knitted underwear manufacturers felt that it was an important matter to them, even at the cost of some delay. They had to be fenced off with the garment trades if not admitted to textiles, and they prefer the latter for company. Also, they think Mr. Andrews' textile committee is a remarkably astute selection of heads, and they wanted to cast their lot with it.

Participants in the meeting said that labor representatives of knitted outerwear objected firmly to the idea of going in with textiles. The labor of knitted outerwear considers itself skilled in the technique of style, and says it is better paid than the run of mill workers, and doesn't want to subject itself to the effect of a lower scale.

Even with the industry "defined" for purposes of the industrial committee, the job still isn't conclusively done. There will be technical committees, as Mr. Andrews explains, "to assist the main committee in considering the problems of branches, such as finishers, mercerizers, and silk throwsters, etc., etc." So the industry is now defined in broadest terms only.

Here in Washington Mr. Andrews has won admiration for his judgment in handling the textile committee matter. One of his main difficulties was, and will be in connection with other industries, the choice of labor representatives that satisfy both CIO and AFL. The administrator told the

Last News Was No News

We held the presses on this issue until the last possible moment, hoping for word from Washington giving final decision on "definition" of the textile industry, under the wage-hour act. It was not forthcoming, however. At Elmer Andrews' press conference Sept. 7, he said he had written the definition but had sent it to interested parties for opinions. Consequently at this writing it is still not known whether the main textile committee of 21 (seven for employers, seven for employees, and seven for the public) will represent cotton, rayon and silk only, or will also include knitted underwear. Obviously, since the definition was not available, the names of actual members of the committee could not be announced. It was expected that both would be released some time during the week beginning Sept. 12, and consequently may very possibly be known when this issue reaches its readers. — **Editor.**

press he saw it coming before he went to work. He said he would get the two labor organizations to agree beforehand on committee appointments, and apparently he did so, for no complaint has leaked out.

Quite outside the realm and control of the administrator, is a reported contest between AFL and CIO for "influence" over the public representatives on the industrial committee. The contention, of course, would be over craft vs. vertical classification. Assuming natural leanings on the parts of labor and employer representatives, the public delegates will be in the middle and may swing decisions. There is no evidence that either AFL or CIO tried to name public representatives, but the expert onlookers here say the two labor groups will ply the committeemen with plenty of ready-made statistics. No one promises that the employers won't do the same.

Both AFL and CIO are moving alertly to take full advantage of the wage-hour law. With about 130 unions, big and little, in the textile and garment fields, AFL has formed a council of textile unions to present a united front to the labor standards administration. CIO's Wage-Hour Bureau, headed by the able, Washington-wise John Abt, is diligently at work advising CIO unions, and helping unaffiliated groups and members of the textile committees when they ask for it. Mr. Abt told the writer he probably would go on in the same capacity for other industries that are brought under the law after the textile job is finished.

Actually, the textile industry, or any other, will never be through with wage-hour problems. An interesting point in this connection was answered during one of Mr. Andrews press conferences the other day. He said, of course there would be recurring need for the services of wage-rate committees in a given industry, and he would appoint for second service the same personnel, in so far as possible, as served first. Incidentally, quite a lot of people are writing in, wanting to be on the committee because they think it's a permanent job, and "reasonable per diem" might be more money than they're making now.

The administrator's appointment of subcommittees to represent small groups within the textile group is regarded as a smart move—though no one seemed to fear that the main committee might inflict or permit any harm to the minorities. Nevertheless, the sub-groups will feel better with representation and will be less likely to start anything rolling that might grow into the impressive opposition that threatened the old AAA and that now confronts the new. A demand

Underwood & Underwood

Donald Marr Nelson, Chairman of Textile Committee under Wage-Hour Act

for amendments is expected, and probably they will be forthcoming—except William Green's proposal that provision for partial consideration of regional differences be removed. Few observers here think he can achieve that objective.

Woolens and worsteds were not included in the present wage-control group because, as ordinary observers explain it, they are not directly competitive with other fabrics, and are traditionally separated from other branches. Experts who like to analyze right down to the bone, say that woolen and worsted labor kept out to avoid the depressing influence of lower wages in cotton textiles. Silk labor wanted to stay out for the same reason, but couldn't because of its close connection with rayon.

The National Association of Hosiery Manufacturers announced in a bulletin to its members Aug. 31 that it expected the hosiery industry to have a separate committee under the Wage-Hour Law. The association said it looked for such a step to be taken by Administrator Andrews because of the size of the hosiery industry and because its problems do not overlap into any of the other industries.

Introducing Donald Nelson

A great deal, of course, depends upon Donald Nelson, public representative and chairman of the textile committee. Responsible men who know Nelson say that he is a broad-gage liberal who doesn't believe the old deal could be made to work any more. They say he is sympathetic with labor. As executive next in authority to Gen. Robert E. Wood, president of Sears, Roebuck Co., he thinks in terms of the American farm market. He is a graduate of the University of Missouri in chemical engineering; is a steady, regular-schedule worker; listens to others and asks lots of questions; leaves his desk to settle problems "on the ground"; took a course at Lowell Textile School where Sears sent him as a youngster; carried forward a Sears-planned apprenticeship at the American Woolen Co. mills.

How many wage rates there will be in textiles under the law none can guess as yet. The committee's job will take several months. Mr. Andrews said there might be different rates for cotton, rayon, silk. Probably there will be differentials to meet various conditions. The higher the general rates are set, the more variations there will be. Some informed observers say a basic rate as low as 27½c. is possible, but they think more likely it will be 30c. or more. It would hardly be worth while, they reason, to set a rate lower than 30c., which will automatically become the statutory minimum Oct. 24, 1939.

Reminiscent of NRA days is the blast from Francis J. Gorman, to the effect that the United Textile Workers of America will insist upon a 40¢ minimum wage under the law.

If 30¢ is the minimum set, as seems to be most likely, it will have relatively little effect so far as increasing payrolls of most textile companies is concerned. Its primary effect will be the creation of a sort of insurance or protection against wage degeneration under pressure of bad business.

Two important appointments announced by Mr. Andrews included that of Paul Sifton, of New York, as Deputy Administrator of the act, and that of Arthur L. Fletcher, of North Carolina, as Assistant Administrator in charge of compliance.

Fear has been expressed by some employers that individuals or small groups of employees will harrass companies by bringing charges on minor complaints, or to test whether their cases are actionable. Charges can be brought under the law without being first referred to the Labor Standards Division. However Mr. Andrews pointed out, in this connection, that a regional set-up would be one of the most important features of his administration and that one of the main jobs of this set-up would be to handle complaints locally and dissuade employees from harrowing employers with charges.

The general conclusion of Washington correspondents, who seem to be able to sense a phony or otherwise faulty official right away, is that Elmer Andrews is all right. So far he is making quite a hit with them.

Textiles in South America

Argentina, first in general business, is second to Brazil in textile manufacture

South America has become one of live topics of conversation in the textile industry. The Southern continent seems a large potential market, but for what? TEXTILE WORLD has drawn together factual surveys of the more important countries and will present them serially.

ALTHOUGH Argentina contains only about 15% of the total population of South America, in several important indices it accounts for about 40 % of the business activity of the Southern Continent. There are about 140 textile plants in Argentina, and it was estimated that between 20,000 and 25,000 persons were employed in this industry in 1934. More recent estimates run up to 82,000. There is said to be an investment of $111,000,000 in the textile industry, mostly local capital. Argentina's textile industry is second to that of Brazil, where there are 430 textile plants employing 128,000 workers.

Figures dated September, 1931, indicate that there were then not more than six large cotton spinning units which had a total of 54,000 spindles. Spindles under order or contemplated totaled nearly 30,000 at that time, and, with the trebling of the number of workers since then, it is reasonable to believe that the spindles in cotton mills now approximate 250,000.

Cotton weaving is done in about 30 mills aggregating (in 1931) nearly 3,000 looms. Most of this machinery was concentrated in six mills, and produced principally cotton duck, drills, sheeting and ticking. Several of the smaller mills produced terry toweling and there were four or five units on absorbent medicinal cotton. These local mills are said to supply the greater part of home demand for duck, towels, and medicinal cotton, but only a negligible portion of the other varieties of cotton fabrics.

The knitting industry in Argentina is said to comprise 170 mills on hosiery, underwear and outerwear. The mills use cotton, rayon and wool, the quantities consumed ranking in the order named. Up to 1931 not more than eight mills made any silk goods. An estimate of the machines in the Argentine knitting industry places seamless hosiery machines at from 5,000 to 6,000; tubular machines for underwear, between 1,000 and 1,500; full-fashioned hosiery machines, about 138. It is said that the greater part of local demand for knit goods is supplied by this local industry.

The wool manufacturing industry in Argentina embraces 80,000 spindles and from 2,500 to 3,000 looms, scattered in 22 mills, dominated by five or six. Argentina wool spinning is limited to the coarser numbers, and, where finer counts are desired for weaving, the yarn is imported. Domestic blanket needs are cared for by these mills, as is a fair proportion of the cheaper woolen suitings. The finer goods are imported.

The silk weaving industry is said to comprise not much more than about 250 looms. Various types of silk fabrics are produced, but their total is a small part of the domestic consumption. Rayon manufacture has made considerable strides since the last figures available, which indicated that there were 75 looms in 1931 on rayon piece goods.

Rayon Is Manufactured

The starting up in June 1937 by the DuPont interests of a $6,000,000 viscose-rayon plant has given new prominence to the synthetic fiber in woven fabrics as well as in knit goods. The woven materials are said to include dress goods fabrics, bedspreads, ribbons, etc. Another smaller plant, Rhodiaseta Argentine, S.A., is making acetate yarn.

Argentina imported $846,700 worth of textiles from United States in 1936; $963,237 in 1935; $1,390,335 in 1934. The largest item in each year was binder twine. Argentina's total textile imports in 1936 were $75,843,000, and in 1935, $66,312,000. The largest items were cotton goods, burlap, rayon yarn and wool goods. The country produced 70,744,000 lbs. of cotton in 1936-37 and 178,478,000 lb. in 1935-36. It exported 108,477,000 lb. of cotton in 1936, and 80,091,000 lb. in 1935.

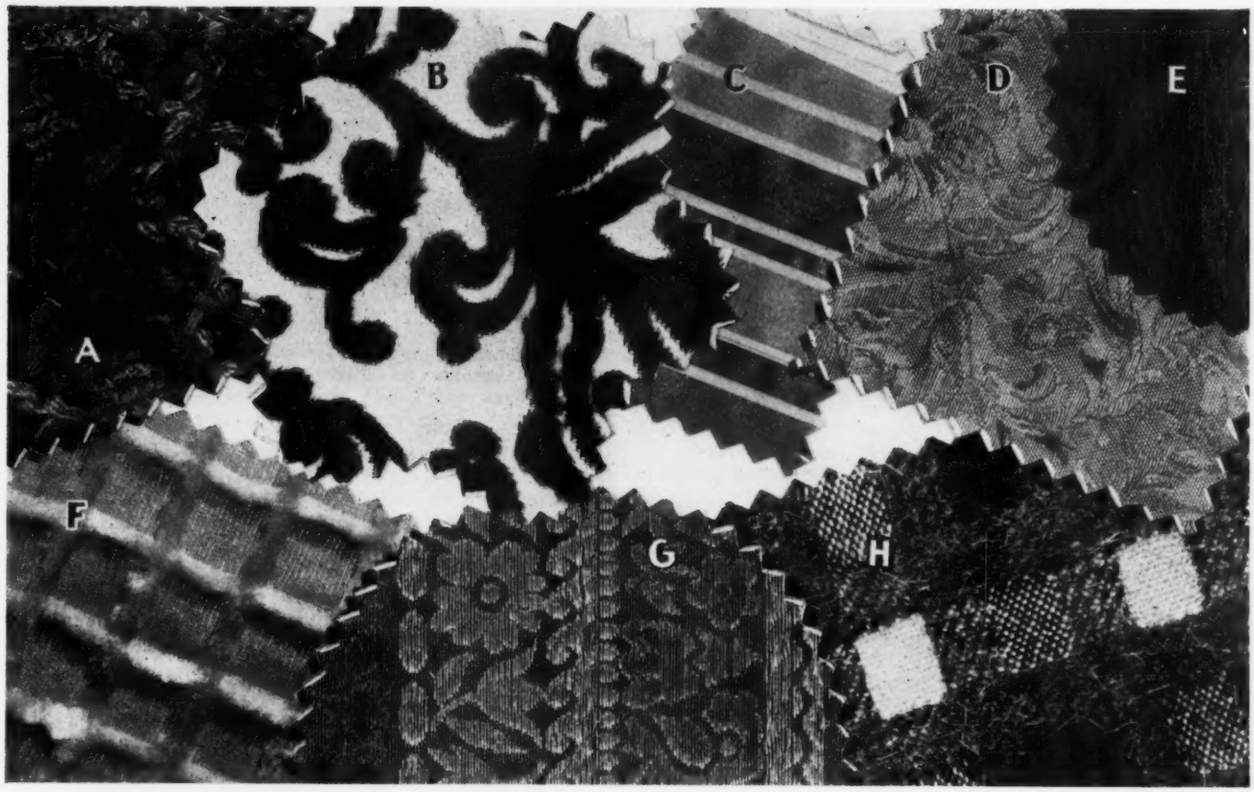
Argentina has experienced a rapid growth and leads its neighbor countries in many business indices. Its population has nearly doubled since 1914, the 1935 official estimate being 12,373,000. The republic is largely dependent on foreign trade and has the highest per capita trade of any of the South American countries—estimated to be $47 in 1932, and $75 in 1936. It numbers nearly half of the automobiles and telephones in South America. Investment in industry is almost $1,500,000,000.

Industrialization of the country began on an appreciable scale about 1931 and has been fostered by increases in import duties. Buenos Aires and its suburbs embrace the largest part of the country's industrial activity. Here unskilled or semi-skilled laborers earn between $1.89 and $2.83 per day and skilled labor receives from $3.40 to $5.10. The wage scales in the interior cities are somewhat lower. There is an 8-hour day in effect and working hours per week are limited to 48.

It is reported to be the opinion of the trade in Buenos Aires that the production cost of their products is higher than that of the same articles in the principal exporting countries, chiefly because most of the material used in B.A. and the machinery must be imported and must pay duty, and also because the individual plants are smaller and labor is considered less efficient. In 1931 the average cost per kilowatt-hour for electric power was 2⅛c. Electric power was said to be used in 90 to 95% of the textile mills. It is stated that fuel oil was worth $9.08 per Mexican ton and coal was quoted at $7.30 per Mexican ton.

Textile machinery installed in Argentina comes from practically all the principal producing countries. Carding machinery is to some extent American, to some extent British, and there are installations from other countries. Spinning machinery is largely British, while winding equipment is largely American. Looms are chiefly British, French or German. At least one cloth printing machine has been installed, and it is of American manufacture. Seamless hosiery machinery is principally American in origin, while the machines for knitting underwear are principally German. Full-fashioned hosiery machinery is also almost exclusively German. In general mill equipment, American manufacturers, represented by local machinery and hardware houses, are securing a fair percentage of the business.

Much of the statistics in this survey were reported by J. E. Sirrine & Co., other figures from U. S. Bureau of Foreign and Domestic Commerce and other sources.



A. Coating with raised pattern (Olré). **B.** Etched velvet (Chatillon, Mouly, Roussel). **C.** Striped silk given oiled finish (Raymond Castelain). **D.** Regal fabric of silk, rayon and lamé (Raymond Castelain). **E.** Example of crepe with small repeated effect (Raymond Castelain). **F.** Gauze shot with lamé overlaid with velvet plaid (Olré). **G.** Medieval lamé using metal threads in gold, red, yellow and purple on black ground (A. & G. Chavent, styled by Carlin). **H.** Contains ten different squares in one repeat by combining red, yellow, black and white (Chatillon, Mouly, Roussel).

Surface Effects Stressed

Plains and fancies shown at Parisian fall and winter openings

By BETTY E. HIRSHBERG
Paris, France

NEW fall and winter fabrics featured in the Haute Couture openings in Paris late in July, continue the French trend toward plain materials with small subdued surface effects, while at the same time, new and attractive novelties are offered. The illustrations are taken largely from the latter group.

Astonishing softness and suppleness are found in the plain materials. Many appear of one color, yet are actually a mixture of tones giving a dusty or ashy effect. Others are of combined fibers which take the dye differently or reflect the light variously.

One step away from plains are reversible fabrics, with plain on one side and shaggy, or stripped, effects on the other. Fleecy constructions predominate in coatings, and ratine yarn is often used in lending novelty to patterned goods. Fur fibers, such as lama, are used in several coatings of the higher price ranges; while mohair performs similar functions in less exclusive lines. Couturiers are making many evening dresses and capes from wool fabrics in soft and sheer versions.

Mossy crepes are again in evidence, as are also satins with matt and glossy surfaces in contrast for their pattern values. The crepes swing through all the fibers, silk, rayon, wool and rayon, etc. Crepes with small and regular surface patterns are favored, as are grosegrain with moire surfaces.

Again are offered a startling series of lamés, the metal effects running the gamut from flamboyant to somber. Lamés are even brought out in English men's wear styles, such as stripes, checks and plaids, for cocktail dresses.

Velvets are important in the winter showing. Notable are unusually sheer versions and patterned styles with the pile etched out chemically.

The new Patou color is "Cornaline", a deep agate red which has a companion light rose tint with apricot cast. Red tints are stressed in numerous collections. Other colors are raspberry, linden green, squirrel yellow, cyclamen, cedar blue-green, olive, etc.

Colors are showing the influence of the English painters of the 18th and 19th centuries, including the brown and blue-green shades of Turner, the blue-red of Romney and Reynolds, the deep reds of Hogarth and the pastel nuances of Gainsborough.

"Delta" Cotton Masquerade

A RECENT letter distributed by the Southern Combed Yarn Spinners Association addressed to all cotton shippers brought to public attention the newest alleged racket in the underground railway: shipping California cotton to Mississippi Delta points, re-tagging it and delivering it to consumers on forward cotton contracts as Delta cotton. The letter, in part, follows:

"Our association has been informed, and we think reliably, that a rather large amount of California cotton was shipped to Delta points last year, stripped of California tags and re-shipped under the guise of Delta cotton to combed yarn mills at an approximate profit to the shipper of $5.00 per bale, and an ultimate loss to the spinner which is indeterminable, since the two crops were indistinguishable last year until the difference showed up in processing and dyeing of yarn manufactured from mixed lots. Many yarn manufacturers, as a result, have had yarn rejected from this cause at a financial loss and an additional possible loss of the good will of the customer.

"The members of our association have been requested to report promptly any evidence of a continuation of this practice. The association does not in any sense of the word desire to say or do anything prejudicial to the sale of California cotton as such, but simply desires to make certain that its members will receive Delta cotton when that cotton is purchased and paid for.

"The practice herein referred to is in direct violation of that portion of Section 5, paragraph (a) of the March 1938 Amendment to the Federal Trade Commission Act, which is as follows:

"'Unfair methods of competition in commerce and unfair or deceptive acts or practices in commerce are hereby declared unlawful.'

"We have a mutual interest at stake and we propose to present to the Federal Trade Commission any evidence that we receive which may show that this practice still exists, and we urge your cooperation in an effort to put an end to this unfair and deceptive practice in commerce."

Last season 75,000 California bales may have traveled incognito to users of Delta long-staple cotton. With an average yearly consumption of approximately 350,000 bales by the southern combed yarn group alone, and a California crop based on 1937-38 baleage of 783,000, the potentialities of the practice seemed sufficiently alarming for the association to take steps to put an immediate stop to it, particularly in view of the anticipated small Delta crop this year due to 40% acreage reduction under the farm program plus the heaviest boll weevil infestation in 25 years.

It is pointed out that the trouble comes from mixed lots of irrigated and rain-watered cotton, due to the different effects of processing and finishing upon the two types. If irrigated cotton is mixed inadvertently and run through a process set up for Delta cotton the dyed or mercerized product is streaked and consequently subject to rejection by the user.

"Mill men manufacturing high quality goods are the first to acknowledge that quality raw material must be used," says Mildred G. Barnwell, executive secretary of the Southern Combed Yarn Spinners. "They certainly can not afford to jeopardize a business built up on quality standards by spinning mixed growths of cotton when they know from the manufacturer's technical experience that yarn from such mixed lots of cotton will not take an even processing, the finished product being streaked in direct proportion to the cotton mixture.

"The move to eliminate this malpractice is to the mutual advantage of both shipper and mill. As evidence of this, there has been received at the association office, an overwhelming expression of opinion to that effect from cotton shippers throughout the South who are anxious to help the combed yarn group keep their quality standards up."

Able cotton classers state that sometimes, and particularly during the past year, the appearance of the irrigated cotton and Delta cotton was so much the same that it was impossible to tell the two apart. Only in the final finishing process did the difference show up.

Chemists Hold Outing

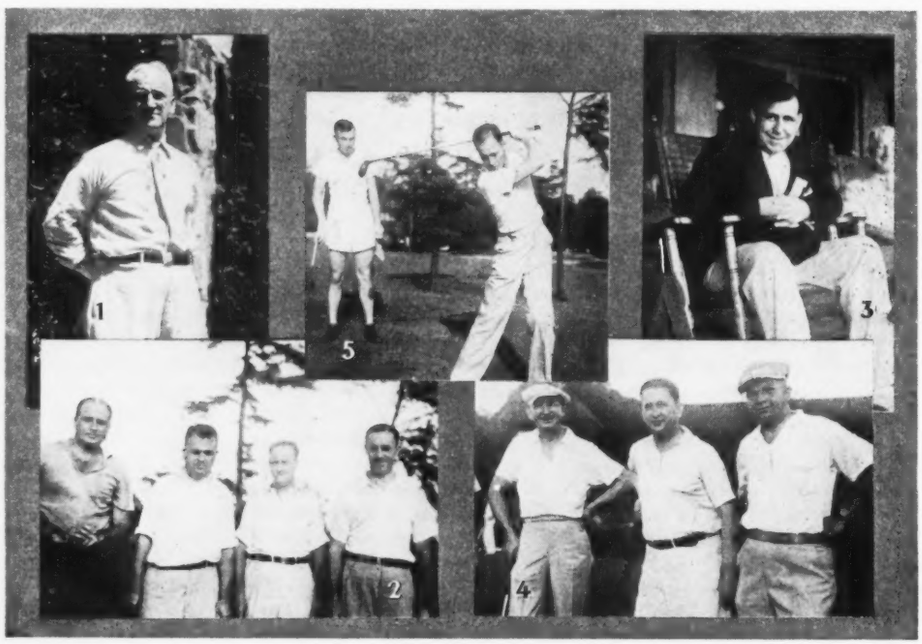
1. Walter E. Hadley, Standard-Coosa-Thatcher Co., Chattanooga, first national secretary of A.A.T.C.C., and one of the organizers and former chairman of South-Central Sec.

2. On the links—R. H. McKinney, American Cyanamid Co., Chattanooga; C. H. Schepmoes, Althouse Chemical Co., Reading, Pa.; I. J. Royce, Royce Chemical Co., Charlotte, N. C.; F. L. Kibler, United Hosiery Mill, Chattanooga.

3. A. H. Gaede, Laurel Soap Mfg. Co., Charlotte, N. C., former secretary of Piedmont Section, A.A.T.C.C.

4. Malcolm MacKenzie, Sandoz Chemical Co., Charlotte; James I. White, National Aniline & Chemical Co., Atlanta, Ga.; Wm. H. Bertolet, Laurel Soap Mfg. Co., Philadelphia.

5. George Dozier, Sandoz Chemical Works, Marietta, Ga., driving, and, in background, Dick Newell, Mandeville Mills, Carrollton, Ga.



The South Central Section of American Association of Textile Chemists and Colorists held its annual summer outing at Lookout Mountain Hotel, near Chattanooga, Tenn., Aug. 5 and 6.

Nestor Grotelueschen, chairman of the section, backed by an able corps of assistants, was in charge. At the banquet prizes for the various events were awarded the following: Golf—Frank Meyers, Dan S. Rion, W. T. Sledge, F. W. Silver, Henry Gaede, Bill Bentel, Bill Evans, Jack Anderson, Peter Gilchrist, Irving Royce, Geo. McCarty, McGee Calhoun; Horse-shoe pitching—Melvin Cooper, Homer Welchel, Jas. Cook, Chester Cobb, C. E. Rollins, J. W. Ross

Control Your Doffs

By systematic allocation of spinning frames and correct distribution of labor

By THEODORE E. CARLSON

SPINNING rooms that are producing only one or two yarn numbers should present no doffing problems as far as piece rates or work loads are concerned. However, most mills of today are highly diversified, and, often, the attempt to assign equal work loads at lowest costs and highest efficiencies actually causes the doffing cost to go over the budget. There are several systems of doffing and several methods of setting piece rates, but in the opinion of the writer the simplest way to install rates and work loads per doffer and still have some assurance of keeping within the budget, is given here.

The following factors are all the data required: length of time per doff for each number; average number of bobbins doffed per doffer per hour (this is overall time and includes getting bobbins, wheeling truck to frame, making out tickets, stopping frame, winding rail down, doffing, etc.). Once the above two factors are known, it is a simple matter to set up a spinning room work load.

Most mills have the information required as to the doff time per count at given speeds, twists, rings, etc. However, should this information not be available, it can be easily obtained by timing the run of the various counts under operating conditions. When this time per number has been established the number of bobbins per frame per hour can be figured as follows: Hours per doff ÷ Spindles per frame = Bobbins per hour for that number.

The bobbins per hour for each count multiplied by the number of frames on each count will give the number of bobbins to be doffed per hour. To determine the number of doffers required with the room set up as it is, divide the number of bobbins to be doffed per hour by the doffer's capacity per hour, which is about 1,000 bobbins less a 10% rest factor.

In order to reduce the possibility of peak-load confliction due to several frames being ready to doff at the same time, the spinning room can be divided into two-doffer allocations, and each section assigned to a certain pair of doffers. The doffer will be saved a great deal of unnecessary running around if the spinner will stand a brightly painted slubber bobbin or flag on the frame to indicate that it is ready to be doffed. As the doffer brings the yarn boxes from the frame, he keeps the stub of the doff ticket for himself and leaves the ticket at the yarn desk for the weigher, or whoever has charge of receiving the yarn. These tickets are collected daily by the second hand, and of course should check with the stubs held by the doffer. If required, the doffer's stubs can be initialed by some second person to certify the actual doffing of the frame.

To control the spinning room, the overseer or second hand should have a board at his desk arranged in the same manner as the frames on the floor, with a hook to represent each frame (Fig. 1). Every hook should have a ticket marked with the number of yarn, twist, speed, type bobbin, etc., and the bobbins per hour for that count (shown in illustration). Unless there is an unusual amount of frame changing, a daily check-up should suffice to inform the overseer of the number of doffers required.

In order to prevent short doffing, or taking a doff off that is not quite full, the overseer should set the minimum allowed, by use of the bobbin rings on filling wind, or gage on warp wind.

For the guidance of anyone interested in trying this system the following may be helpful:

1. A doffer's capacity should be about 1,000 bobbins per hour. Allow a sufficient rest factor, about 10%.
2. If a small part is left over after assigning the allocations, a learner should be put in charge of it rather than have it divided up among the already full sections.
3. Doffers should be allowed time to piece up so that the spinners will not lose production.
4. Be sure that doffing trucks are compact and of good design.
5. Keep bobbins clean and in good condition.

It is easy enough to determine whether use of this system will benefit operation of the spinning department, by getting data together and laying the room out. Try two doffers on one section for a few weeks. Then if this one section proves satisfactory, the system can be applied to the entire room.

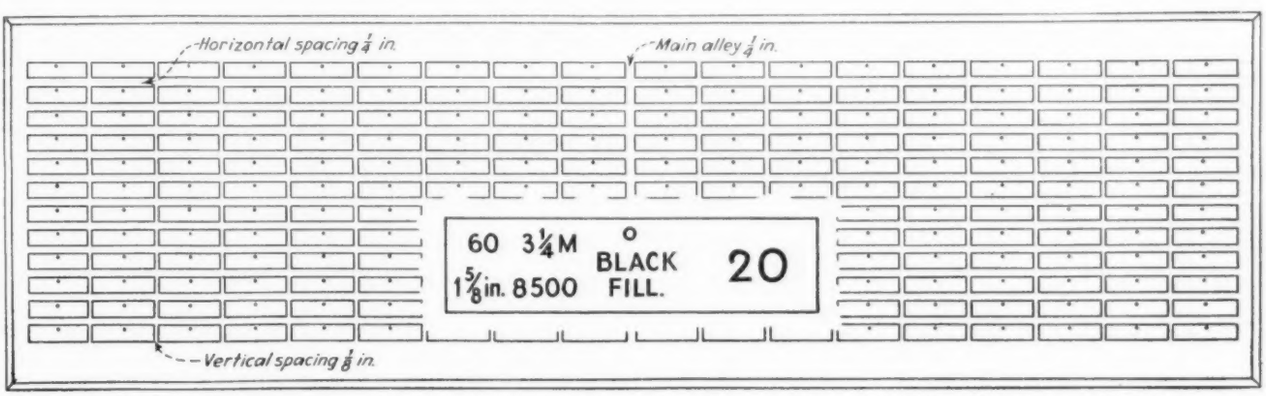


Fig. 1. Spinning room control board. Inserted is a frame ticket, actual size (½"x2"). Notations are defined as follows: 60 yarn number, 1⅝—ring diameter, 3¼ M—twist multiple, 8500—spindle speed, black fill—type bobbin, 20—bobbins per hour

Burrs, Blends, and Bins

How to obtain better results in preparing wool for spinning

By A. WARD FRANCE
Philadelphia Textile School

CAREFUL BLENDING is of paramount importance in the production of good woolen yarn. If the blending is not properly done, some parts of the yarn may receive an excess of long fibers; this leaves places containing only short fibers, and results in excessive breakage during spinning. Of course, such conditions are more noticeable in blends in which a large percentage of reworked stock is used.

Obtaining an evenly napped finish on cloth woven from yarn spun from poorly blended stock is difficult. In addition, use of improperly blended stock may result in great disparity between the color effect desired and that actually produced. However, damage to the color effect frequently does not show up until the cloth is at the finished perch, where it will be found that some spots are darker than others, giving the cloth a blotchy appearance.

There are several things which can be done to help improve blending and to keep at a minimum defects of the types mentioned. For instance, if a shoddy blend is being laid, it is advisable to run the shoddy through a mixing picker before blending. This is because such stock, as taken from the shoddy card, is in roll form and is later packed tightly in bales. As a result, the fibers stick together considerably. A preliminary picking opens these fibers; hence they blend better with the other stock in succeeding operations. One run should be sufficient and no oil need be added.

In the case of fleece wools, a careful burr picking is desirable. This is because burrs, if allowed to go into the card, may dull the points of the wire and be broken up into small pieces which stick to the stock right through to the finishing room. Napping may remove some of these bits of burrs but it is usually necessary, in order to effect complete removal, either to hand speck the cloth or to carbonize the piece. Some mills find it desirable to remove burrs from fleece wools in the white, prior to dyeing, but it has been the writer's experience that burrs come out easier after dyeing. Also, as an aid to blending, the burr picking can conveniently be considered as a mixing for the first run. In such cases, no oil should be put on the stock, as it may interfere with the action of the burr cylinder.

Problem of Spiral Burrs

Spiral burrs, on the other hand, can not properly be removed by the burr picker. Burrs of this type are very common in Australian wools and in most California wools; all wools containing them should be carbonized before blending. Putting them through a burr picker causes burrs of this type to unwind. They then go through the card and wind around the yarn during spinning. If the end does not break, and thus cause them to be removed, they interfere in the weaving by getting caught in the heddles and breaking the warp thread. They also have a tendency to chafe the threads alongside of them.

In blending it is important to remember that when a small amount of a color is to be added to a mix, this should first be mixed with some additional stock of another color, before the actual blending takes place. For instance, if 5% of white is to be added to a colored lot, it is quite difficult, because of the relatively small volume, to spread this small percentage evenly over six or eight layers. To eliminate the possibility of uneven blending of the white stock, it may be mixed with 5 or 10% of some other color, preferably of the same kind of stock. This will increase the volume to such an extent that there is enough to spread evenly as a regular layer. This is very important, and tends to prevent the unevenness and blotchiness mentioned earlier in the article.

Another point of interest in this connection is that it is sometimes advisable, where stock is to be blown into a room or bin from the picker, to add oil to the layers while making this small pre-blend of white and colored stock. This will cause the white to be heavy enough not to fly to the sides of the room after it has been run through the picker and added to the balance of the blend. The necessity for such treatment lies in the fact that dyeing tends to deaden the colored wools, while the white is lofty and will not settle so soon; unless taken into consideration, this factor may cause a bad separation.

Properly Laid Mix

Nothing is worse in blending than having a poorly laid mix. To obtain good results, the layers must be spread evenly, and there must be enough layers so that each one is not over 6 in. thick. Another important point is to make sure that the pile is cut vertically every time an armful is fed to the picker. If this is not done (and the men often become careless about it), a proportionate amount of each of the different colors and fibers will not be in each armful and the blending effect will be lost. Stock should not be taken from the top of the pile but always from the sides and always as deep an armful as possible.

The Fearnaught picker is a very good blending machine, due to its carding action. It probably breaks a few more fibers than the regular mixing picker, but does a very thorough job of fiber and color blending.

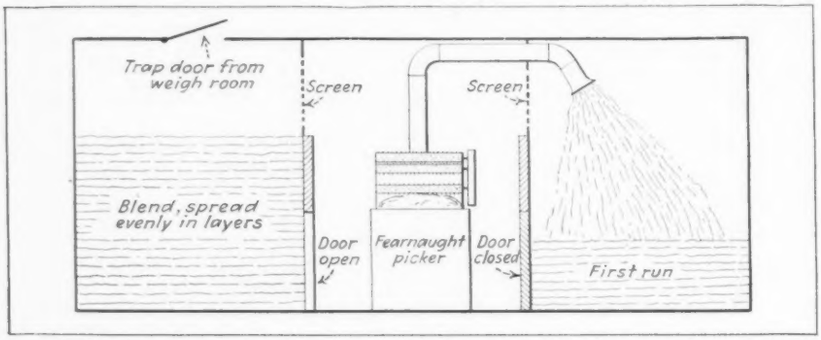


Fig. 1—Efficient location of weigh room, stock bins, and Fearnaught picker

If only one kind of stock is used, and only one color, probably one run through the picker is sufficient. On the other hand, if two or more different stocks are being blended, even though the color is all white, two runs should be given. Grays with 50% white, and heather mixes with several bright colors, will require three runs.

There are several ways to handle the blend from the picker. The usual method is to blow the stock into a room or bin made with provision for removing the air pressure caused by the speed of the brush or doffer of the picker. In many cases a section of fine netting is installed near the ceiling to permit escape of excess air. A pipe leading to the outside can also be used, but a screen must be placed over the opening to prevent stock from entering the pipe.

An aid to this method is to have the picker connected to a continuously revolving pipe in the center of the room. This causes the stock to be blown to all parts of the bin instead of letting it pile up in one place. Another efficient method is to use a ceiling condenser which removes the air pressure and drops the stock to the floor. It can be so placed in the room that the pile will be in position for the next run through the picker.

It is good practice not to begin the second run of the stock through the picker until it has been built into a pile again, so that it can be cut vertically in the same manner as the original pile was cut and fed. This makes sure that different parts of the pile will be fed at each armful and that no large portions of one fiber or color will be left unopened; this, after all, is the object of blending.

After the final run the stock is usually blown to the storage bins in the card room, and there kept till used.

A well laid out picker room with which the writer is familiar is shown in Fig. 1. This room has two blending bins, each with a door convenient to the feeding end of a Fearnaught picker placed between them. In a room above, the stock is weighed and divided suitably for the various layers to be made. Each layer is then dropped through a trap door into one of the bins where it is spread carefully in even layers. When the batch is all laid, the door near the picker feed is opened and the pile is cut vertically and fed to the picker. From the picker the stock is blown to the room on the other side of the machine. When the first room becomes empty, the door of the other room is opened, the pile is cut vertically again, and the stock is run through the picker the second time, and then blown to the storage bins in the card room.

Reclassifying Throw-Outs

Boosts percentage of first-quality hosiery; points out causes of full-fashioned defects

By MILTON M. ABRAMS

IN HOSIERY-MILL finishing departments it is important to have complete records of all merchandise which cannot be shipped as first quality. Regular analysis and reclassification of throw-outs, style by style, will help the management to determine exactly where losses due to defects and irregularities are occurring, and also make possible reclamation of some of this merchandise for first-quality goods and job lots.

After the firsts have been extracted from a lot, there remain the following classifications: menders, latchers, reboarders, and sub-standards. Menders should carefully be gone over after mending. Many times it will be found the mend is invisible or indiscernible and does not endanger the wearing qualities of the stocking; such stockings can be considered first quality. Instances of this type will include small nicks or pulled threads which have been worked back; small mends along the seam, at the corner of the heel, in the foot, the welt, the welt picot, or the back of the welt. Latchers, if latched and carefully and invisibly mended, can frequently be reboarded and considered as "irregulars." Of course, a number of stockings containing defects of this type will be suitable only for "seconds" or "thirds," but there should still be a worthwhile quantity suitable for good "irregulars." Both menders and latchers will be discussed further in a later part of this article.

Reboarders—short-length and improperly boarded stockings—if worked on a narrow form or, when necessary, reboarded a size smaller, can usually be brought up to the proper length. If it is merely a question of improper boarding, this can be corrected by reboarding.

Throw-Out Classifications

This leaves for discussion sub-standards. If a special operator goes over the sub-standards and reclassifies them, there will often be found in the lot perfect stockings, or stockings passable for first quality. These should be carefully reclaimed, and the balance of the lot then classified into "irregulars," "seconds," "thirds," "odds," "waste," and any other classifications the mill has established.

In classifying throw-outs in order to detect manufacturing defects, a complete breakdown or analysis should be employed. Such a breakdown will include the following classifications: short lengths, soiled, load-ups, bad boarding, inside pulls, bad topping, bad foot-matching, needle lines, sinker lines, dye marks, bad welts, bad seaming, bad splicing, bad heel-plating, bad foot-plating, bad looping, press menders, gray menders, slugs, latchers, unevenness, sleazy work, turned-in picot, reboards, and odd styles.

Short lengths are due either to too much tension at the knitting machine, improperly conditioned silk, or the knitter cheating on number of courses knitted.

Soiled hosiery is caused by carelessness in handling in the finishing department or by use of improper dyes.

Load ups are due to carelessness of the knitters, or to neglecting to press off a stocking at the proper time.

Bad boarding is caused by carelessness in the boarding department.

Inside pulls may be due to a rough gray-examining form, a rough boarding form, mishandling of stockings dyed on the wrong side, too large dye nets, or careless handling in the gray department or dyehouse.

Bad topping is due to carelessness or incompetency of operators.

Bad foot-matching may be the result of variation in tension between the legging machine and the footing machine, use of different silk on the legger and footer, use of differently conditioned silk on legger and footer,

or careless transferring from transfer bars to footing machine.

Needle lines are caused by imperfect, broken, or bent needles on a knitting machine.

Sinker lines are due to faulty sinkers; this may call for adjusting or resinkering.

Dye marks result from carelessness in the dyehouse. Possibilities include loose dye which may have blown around the room, or an improperly mixed dye batch.

Bad welts may be due to incorrect knitting tension or carelessness on the part of the knitter. One side of the welt may be knitted looser than the other. Improper conditioning of silk may also cause this condition.

Bad seaming is caused either by carelessness of operators or use of a seaming machine which requires adjustment.

Bad splicing can usually be traced to a knitting machine which is out of adjustment.

Bad heel-plating is due to improper adjustment of machinery. Frequently, if the knitter is watching carefully, this can be detected before much damage is done.

Bad foot-plating is the result of the same conditions causing bad heel-plating.

Bad looping is caused by carelessness on the part of the operators, or a looping machine which is out of adjustment.

Press menders may be caused by small pulled threads due to mishandling in the gray, in the dyeing, or in the finishing. They may also be due to improper or overlooked mending in the gray, or to breakouts from the fashion marks, heel corners, blind stitches, etc.

Menders in the gray should be comparatively few in number, and an excessive amount of these shows faulty manufacturing. The quality of mending in the gray very often puts a stocking either in a higher or a lower classification in throw-out grading. Therefore, gray mending should always be carefully done.

Latchers result from breakouts during boarding, or pulls which have passed the gray mending, and which break out in the boarding. Their causes should be carefully traced back to their sources, as latchers go more often into "seconds" and "thirds" than into "irregulars."

Slugs are silk imperfections and the throwing department should be called in when they are noted. Too many slugs indicate either that too low a quality of silk is being used, or that throwing is improper. Unevenness of the silk used will cause light and dark shadows in the hosiery. This is particularly objectionable on dark shades and many times can not be entirely eliminated, even by the three-carrier method.

Sleazy work is due to use of dry or improperly conditioned silk.

Turned-in picots may be traced to uneven tension while knitting the welt, or to an uneven number of courses between the inside and the outside of the welt. They may also be caused by improper seaming at the turn of the welt.

Reboards may be due to wrinkling and mishandling of stockings in finishing; such hosiery, of course, can be reclaimed immediately upon reboarding.

Odds are caused in the gray examining department, an odd stocking of a style often being mixed in with another lot, by mistake. This is the result of carelessness and should be called to the attention of the gray examining department.

Press Mending Classifications

Press mending reports should likewise be split up so as to classify the causes of the various defects. These involve the following items: loose courses, leg narrowing, seam, heel corners, cuts, pulled threads, welt, topper, foot narrowings, looper, footer hook.

Loose courses are caused by improper boning. If the topper does not properly use the bone, she may overlap or split wales, or may exert too much pressure.

Leg narrowings sometime break out for no apparent reason, but are often caused by bad needles or improper adjustment of the narrowing device.

Seams may be caused by a skip seam, improper seaming thread, or carelessness of the seamer.

Heel corners are weak points in the stocking and may break out under the tension of the expansion form in gray examining, or pressure of the boarder when boarding. Sometimes they are manufacturing defects, caused by the heel corner not being properly knit.

Cuts are due to carelessness in the gray manufacturing departments. A heavy weight, such as a knitter's pliers, a part of the machinery, a transfer bar, a pair of scissors, etc., dropped on the gray goods, will cause them.

Pulled threads may occur anywhere from the legger on through the various departments; elimination calls for careful handling.

Welt menders may be due to bad needles, blind stitches, etc.

Toppers are caused by inefficient and/or careless toppers. Defects of this type should be very carefully watched.

Foot narrowings can be traced to the same causes as leg narrowings.

Loppers are caused by carelessness on the part of operators, improper looping yarns, or a looping machine which is out of adjustment.

Footer hooks are holes caused by the fotter placing his hooks in the heels carelessly or with too much tension.

Short-length and improperly boarded stockings can usually be made first quality by reboarding. Analysis and reclassification of all throw-outs, style by style, will make possible reclamation of some of this merchandise for first-quality goods and irregulars, and will help the management to determine exactly where losses due to defects are occurring.

Latch Menders

Latch menders can be split up into practically the same classifications as press menders, but should be recorded separately, because, as mentioned before, while a number of press menders may find their way back into first-quality goods, very few latchers will be anything but "seconds" and "thirds." There may be a few "irregulars," but never a "first."

If every stocking is carefully classified as to the defect, and a percentage report made out showing the yield on each lot or each run of a particular style, it is easy to determine where defects are cutting down percentages of first-quality yield. The writer knows of no definite percentage or table of percentages which will show the maximum allowable proportion of each type of throw-out defect, but mill experience will gradually indicate certain percentages for each style, and these can be used as standards. Each of the imperfections mentioned can be greatly reduced, if not entirely eliminated, by careful supervision in the proper department, and by bringing constant pressure to bear on the department or individual responsible for the defect.

History of Terry Cloth

Two producers tell the story in booklets

THE HISTORICAL background of terry cloth, particularly when used in the form of towels, is effectively told in two booklets recently issued to the trade by two large manufacturers. One of these, entitled "Concerning Towels, Past and Present," is published by Georgia-Kincaid Mills and Woodward, Baldwin & Co., jointly, in connection with the fiftieth anniversary of the first named concern. The other, entitled "The Story of Terry Towels", is published by Cannon Mills.

The word "terry" is derived from the French "tirer" meaning to draw or pull, descriptive of the pulled or looped surface. The construction, however, goes much further back in history than the name under which it is now known since specimens of looped face fabrics have been found in Egyptian tombs dating back to about 2,000 B.C. The Incas of Peru used the weave in 400 A.D.

The construction comes to the fore again in the seventeenth century when the women in Turkey produced the fabric as a form of handiwork, pulling the loops by hand.

In 1850 a traveling member of the Christy family brought a sample of this Turkish material to a kinsman who ran the Manchester, England, plant of W. M. Christy & Sons. This firm called in Samuel Holt, who invented the Turkish towel loom as it is known today by employing two warps, one of which was used to form the looped surface. Previous weaving methods had employed the filling to form the loops. The first towel off this loom was presented to Queen Victoria in 1851, who in turn awarded the inventor a gold medal. The Christy firm still makes terry towels.

A member of the Holt family migrated from England to Paterson, N. J. in 1865 and the first Turkish towel made in this country came off hand looms in that town. In 1872 power looms were set up to do the work. A grandson of the inventor, Samuel Holt, is making towels in Paterson, N. J., at this time. John Rothwell of Philadelphia obtained a patent in 1877 for a spring reed attachment for weaving terry. In 1882 Rothwell obtained a patent on a movable crankshaft for terry looms. Succeeding patents have produced a vastly improved mechanism, evolved however from these earlier inventions.

The earliest Turkish towels made in this country were fringed and did not come into general use until about 1890. The first hemmed Turkish towels were produced in 1898 at the Nelson Kershaw Mills, Philadelphia.

The Woodward-Baldwin booklet states—"Once a luxury, produced in limited quantities, the modern towel is now a household necessity, requiring 6,500 looms that consume 1,333,000 bales of cotton and produce 16,500,000 dozens annually. The retail value is approximately $38,000,000." The Cannon booklet states "As a result of the resourcefulness and ingenuity of towel manufacturers, color, beauty of design, absorbency and durability are now characteristic of towels that sell at prices practically every household budget can afford."

What Holds the Shuttle?

IN THE December, 1937, issue of TEXTILE WORLD, Melvin R. Williams, Pennsylvania, wrote a letter of friendly criticism on Mr. Moberg's article "What Holds the Shuttle?" published in the July, 1936, issue. It is because I believe that the opinions of Mr. Williams are, at least, only partly correct, and that he has missed the idea of what really holds the shuttle, that I am joining in the discussion.

To see an empty loom running, with a shuttle going back and forth across the loom, and only the race board and reed holding it, makes many people wonder what keeps it from flying out. I believe any claim that the force of gravity holds the shuttle on the race board and against the reed is only partly correct. The shuttle is being thrown from box to box at such a high velocity that, seemingly, gravity can have but the slightest effect on keeping it from leaving its path. The statement that the lateral influence of the backward movement of the lay has little or no effect on holding the shuttle against the reed, because the backward movement has a tendency to leave the shuttle behind, seems erroneous. This would be true if it were not for an eccentric motion of the lay, due to the crankshaft bearing in the loomside being below the crankarm pin in the lay sword. One purpose of this eccentric motion is to cause the shuttle to press lightly against the reed as it moves across the lay. This can be explained by referring to Fig. 1.

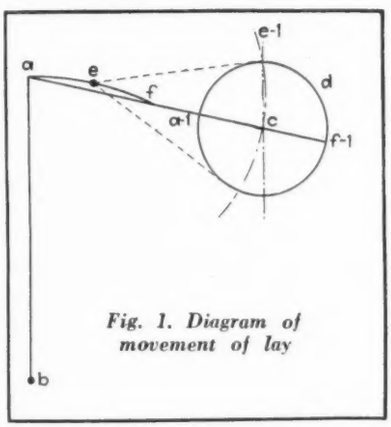


Fig. 1. Diagram of movement of lay

Line *ab* represents a line drawn from the center of the rocker shaft to the center of the crankarm pin when the lay is in its forward position. Point *c* is the center of the crankshaft. Circle *d* is made by the center of the crank as it gives the reciprocating motion to the lay. Arc *aef* is the path of movement of the crankarm pin.

As the crankarm pin moves from *a* to *e*, or the first half of the backward movement of the lay, the center of the crank has moved from *a-1* to *e-1*, or from front to top center. This is equal to 77° of the crank's circular motion. As the crankarm pin moves from *e* to *f*, or the second half of the backward movement of the lay, the center of the crank has moved from *e-1* to *f-1*, or from top to back center. This is equal to 103°. Since the center of the crank revolves at the same rate of peripheral speed at all times, the shortest distance will be traveled in the fastest time. The shorter of the two arcs made by the center of the crank is the one covering 77°, which is made during the first half of the backward motion of the lay. Hence, the lay must slow down as the crank center covers the long arc of 103°, or from top to back center.

The shuttle is started on its way when the crank reaches top center and the lay is swinging back at its greatest speed. Just after the shuttle starts on its way, the lay begins to slow down and keeps slowing down until back center is reached. This slowing down has a tendency to cause the shuttle to go ahead of the lay in its backward movement, which results in its pressing against the reed.

— ROBERT NEWELL.

Surface-Active Chemicals

Procedure for determining their suitability for specific textile applications

By GEORGE A. THOMAS

IN VIEW of the fact that the 40 or more textile processes in which surface-active chemicals are employed are carried out for different purposes and under widely different conditions, it is not surprising that no one compound is suitable for use in all processes. Methods for determining the wetting-out and detergent values of various types of chemicals and under various conditions were described in a previous article (TEXTILE WORLD, August, 1938). Such tests, plus a knowledge of the results desired from a specific process and the conditions under which the process is carried out, make it possible for one to determine which particular surface-active chemical is likely to prove most efficient and economical to use in that process.

OPERATION	TIME ELEMENT IN WETTING-OUT	REMOVAL OF IMPURITIES	ADDITIONS TO FIBER
Scouring Raw Wool	The sorted dry wool enters the train of the scouring machine and passes through the bowl in from 1½ to 3 min. Thus the action of the bath must be swift and positive.	The natural oil of the wool, dried perspiration, sand, dirt, and common branding materials must be removed in the short time the wool is in the several bowls without injury to the fiber. Thus detergency is the prime requisite of a surface-active chemical used in wool scouring.	No substances are or should be added to the wool while it is being scoured.
Soaking Silk for Direct Knitting	Skeins of silk are wet out in the soaking bath by the soaking solution. The time element is dependent on the type of soaking equipment used. Times for the principal kinds of equipment are as follows: Still bath tubs . . . 12 to 14 hr. Circulating tubs . . 8 to 14 hr. Pressure machines . 1 to 2 hr. Vacuum machines . ¼ to ½ hr.	No gum or sericine should be removed from the silk. Therefore the surface-active chemical selected should be one that provides good wetting-out and poor detergent properties.	During soaking the silk takes up oils and other ingredients from the bath. To obtain the highest efficiency from a soaking formula, there must be a high exhaustion of the bath. Therefore the surface-active chemical used must not interfere with the total exhaustion of the bath at the completion of the soaking operation. It may, however, increase the rate or the uniformity with which the soaking materials are attached to the silk.
Wetting Out Cotton Piece Goods Prior to Kier Boiling	The dry goods in most cases pass through a singer of the plate or flame type at speeds up to 300 yd. per min. They then pass through a quenching box, where they are impregnated with the chemicals for the next operation.	The quenching box extinguishes any sparks, and the solution in the box may contain a starch-removing enzyme or may be such that it only prepares the goods to receive the kier charge.	In this operation nothing of a permanent nature is added to the goods. Anything that is added is a processing agent to aid in this or the next operation. Lime resistance is of little consideration, since subsequent acid sours will remove any insoluble salts formed in this operation.

As was stated in an earlier article each of the textile processes in which surface-active chemicals are employed accomplishes one or more of the following results: (1) Fibers, yarns, or fabrics are wet out. (2) Some natural or acquired impurity or foreign material is removed. (3) Some substance is added to the fiber, yarn, or fabric. (4) Some physical state of the fiber, yarn, or fabric is changed. (5) Some chemical state of the fiber, yarn, or fabric is altered.

It was stated also that the more common factors governing these processes are as follows: (1) the pH value of the bath; (2) degree of resistance to lime and other salts present in the bath; (3) optimum temperature for the process; (4) physical condition of the bath, solution, or material; and (5) bath ratios.

Further it was shown that surface-active chemicals can be classified into three groups; according to their wetting-out and detergent properties. These are: (1) good wetting-out; poor detergent properties; (2) good detergent; poor wetting-out properties; (3) good wetting-out; good detergent properties.

The accompanying chart indicates how the pertinent data regarding the various textile processes can be set down in a form which makes it possible to determine the type of surface-active chemical most suitable for use in a given operation. In the case of silk soaking for direct knitting, for example, the chart indicates that the most effective surface-active chemical is one that has the minimum detergent action at temperatures under 120° F. in an alkaline solution, prevents lime soap formation, does not increase the stability of the bath, and is absorbed by the silk to such an extent that it increases the ability of the silk to wet out during knitting.

The selection, would, therefore come from Group 1. To determine which particular compound in that group is the most effective, in addition to the wetting-out test described in the August issue, actual soaking tests on silk skeins should be conducted under existing plant conditions. These are carried out in sets, using as a control a soaking without the surface-active chemical in the bath, to note the improvement in the rate with which the soaked and dried skeins absorb and take up water.

Alteration of Physical State	Alteration of Chemical State	Operating Conditions
The physical changes which take place in wool scouring are an opening up of the locks or tufts of fiber; the wool becomes white or much lighter in color, due to the removal of the impurities; each fiber exhibits its natural waviness; it is wet and then dried. The wool becomes softer to touch. There should be a minimum of fiber breakage and tangling, with no injury to the scales or serrations.	Chemical changes are not in the wool fiber, but are limited to the materials which the scouring operation is intended to remove. These may include a partial saponification, as well as emulsification, of the wool fat and other substances removed from the wool. The wool may contain lime and other metallic salts. Surface-active chemicals used in scouring wool should retard or prevent the formation of lime salts or other substances which will adhere to the fibers.	Wool scouring baths seldom exceed more than a 0.2% solution of any of the materials used, unless it be soda ash. Therefore the surface-active chemical selected must be one that is efficient in detergency at very dilute concentrations. The baths are all alkaline and vary with the type of wool, as well as in the several baths of a scouring train. The temperature does not exceed 120° F. The bath ratio is usually in excess of 50:1. Thus a suitable surface-active chemical for wool scouring must be effective in dilute, slightly alkaline solutions at not over 120° F.; it must be resistant to lime; and must not be absorbed by the wool.
The gum of the silk is softened and made plastic so that the silk will run well on the several machines used in throwing and knitting. The silk is rendered ductile and non-elastic. It is given a definite surface lubrication so that it will wind, twist, and draw without filament breakage. Its color is temporally changed by the addition of identification tints.	Chemical changes include a definite peptizing of the sericine by the materials in the bath. No change takes place in the fibroin. If properly selected, surface-active chemicals will provide enhanced wetting out on the knitting machine and subsequent degumming in the dyehouse.	The pH values of soaking baths vary from 8.5 to 9.8. Thus the surface-active chemical must be one that is efficient in alkaline solutions where operating temperatures of 70 to 120° F. of the bath are maintained. In addition to good wetting-out and poor detergent properties, the surface-active chemical selected for silk soaking should be one that has a high resistance to lime or produces soluble lime salts. Foam and suds are not essential and too much may prove detrimental in the case of some circulating machines. Light suds or foam indicate the bath is not splitting too rapidly for uniform work. The bath ratio is from 2:1 up to 8:1.
The physical state of the fabric is altered in the sense that the dry full-width goods are thoroughly or uniformly wet out and impregnated. They may be kept in the full width or converted to the rope form.	Little or no chemical change takes place in this operation, since it is a preparatory operation for the subsequent boil out.	If enzymes are used as desizing agents, it is essential that any surface-active chemical used as an aid in wetting out be one which has a high efficiency at the pH value necessary to maintain optimum efficiency of the enzyme. These generally are as follows: malt enzymes, 4 to 5; fungus enzymes, 5.4; pancreatic enzymes, 7.0. The lethal temperature for the enzymes must not be exceeded in an attempt to obtain a higher wetting-out speed of the bath. A few enzymes fail to react on starch if the temperature exceeds 115° F., whereas others have an optimum working temperature of 150° F. Bath ratios are of little consideration, since the goods are run through the bath and the solution is absorbed by the fabric.

Mechanical Blowers

Textile mills reduce fuel costs, increase steam output by installation of forced-draft equipment

By FRED MERISH

A RECENT survey of textile mills made by the writer in the eastern states discloses that savings in boiler-room costs and an increase in combustion efficiency can be effected by installation of blowers for producing a forced draft. Savings were reported variously from 10 to 35%, while the increase in steam due to the use of blowers was reported to be 25 to 50%.

Mill superintendents interviewed complained of the difficulty in maintaining peak loads with a natural draft. In some instances this was due to an inefficient boiler, while in other instances it was due to a short or badly designed stack. Obviously, to continue using an inefficient boiler results in excessive operation costs, while to operate with a deficient stack—particularly on damp, rainy days—requires additional time, labor, and fuel to make the fire respond properly. Often, a detailed study of a boiler plant will indicate that installation of a forced-draft blower will counteract plant deficiencies. At the same time, the installation will be quite inexpensive, since actual cost of the blower is only a few hundred dollars and the time required for installation is only a few hours.

To obtain the best boiler efficiency it is necessary to build up to about 150% rating. Even though this is practically impossible with natural draft, mill men reported that this rating had been obtained by use of blowers. The purpose of the blower is to supply the fuel bed with sufficient air to increase the rate of combustion. When maximum output is not needed, the blower automatically ceases to operate, and goes back into operation again as steam is demanded. Thus, a uniform pressure is maintained under all conditions.

In one mill, to which an addition had been made, the boiler could not deliver the increased amount of steam needed. Installation of a blower solved this problem. In other mills the engineers reported to the writer that they had obtained 25 to 50% more steam by the use of blowers.

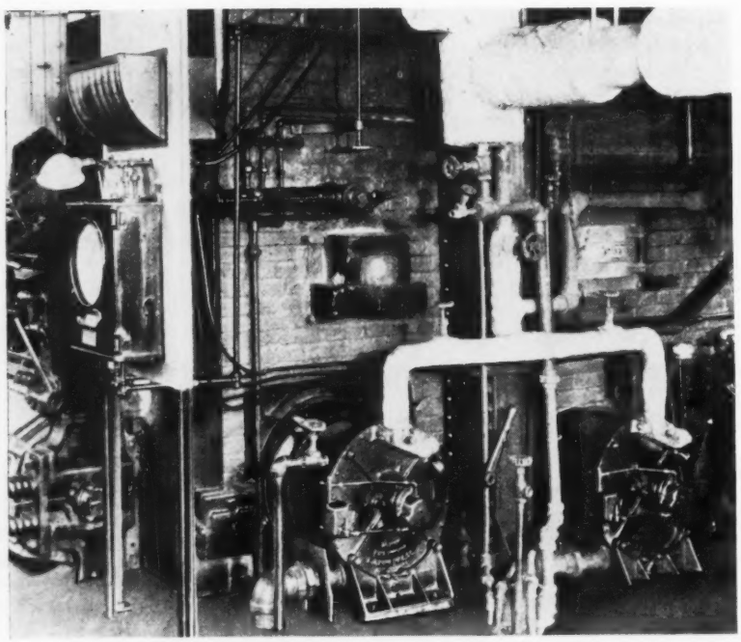


Fig. 1. A boiler equipped with turbine blowers

In hand-fired plants using natural draft it was found, due to fluctuations in pressure, impossible to meet sudden steam demands. Several superintendents in such plants stated that by use of blowers equipped with throttles and other automatic devices, full steam capacity could be obtained in a short time.

The superintendent in one mill said that it was difficult, at times, to furnish sufficient steam for plant requirements, because the boilers were not operating efficiently, due to the need of repairs. At the same time it was not feasible to shut down the boilers and put them in proper condition. In all probability this situation could be remedied by the installation of blowers, since by use of a blower, a boiler can be cooled off rapidly for inspection, cleaning, or repairs, and, in the meantime, the blowers on the other boilers can be speeded up to take care of the additional steam demand. In some plants, where three boilers were previously used, operating at capacity with natural draft, two boilers now carry the load with blowers, leaving one spare for use during repairs, inspection, and cleaning.

Fuel savings, which were reported, ranged from 10 to 35%. In the larger plants, which employed expert engineers and were equipped with modern boiler-room machinery, the percentage savings were not so substantial as in smaller plants. However, the direct dollar savings in fuel costs are secondary to the indirect savings realized through better processing, increased production, adequate steam load at all times, and lower boiler-room labor cost. In both large and small mills there will be a saving if draft control has been improved by mechanical means, because of the higher combustion efficiency per pound of fuel. Where draft is properly balanced mechanically, there is low infiltration of cold air, more thorough burning of the coal, less ash, and less labor required for cleaning.

Engineers, in some of the mills inspected, reported a lack of sufficient steam, due to the use of poor grades of coal. Different shipments of coal are likely to vary. Some may require more draft than others, and, if the natural draft is insufficient, the

boiler plant may not be able to generate the required amount of steam. A number of mills surveyed had equalized these differences between varying grades of coal by installing blowers. A dependable blower will handle most grades of low-cost fuel that can not be burned with natural draft, such as slack coal, coke breeze, or rice, barley, and screenings, which are small sizes of anthracite.

Hard clinkers and caking often make it impossible to generate as much steam as is required by a mill. Since clinkering is due to fusing of the coal at high temperatures, use of a blower may eliminate this trouble. Blowers can be obtained with an automatic moist exhaust which moistens the ashpit to keep the temperature below the fusing point of coal. This will reduce the hazard of burning out grates.

There are two general types of forced-draft equipment—the individual unit which supplies draft to one boiler, and the central fan system with a single unit which supplies all boilers through ducts. The central fan system requires more space than the individual blower, but one unit serves all boilers, and, for that reason, may offer economies of installation and maintenance. However, the boilers will not be so independent in operation as they would be with individual blowers. Therefore, when one boiler is shut down, the common duct serving the others may cause difficulty in controlling the air supply unless the blast gate is adjusted properly. Where individual blowers are installed, a boiler can be shut down without resulting in any complications in the operation of the other boilers. For mills which have a wide variation in loads, this fact should be given careful consideration, even though other advantages of the central fan system may, at first, appear to be greater. Another advantage of the individual unit is that many installations require nothing more than a small amount of brick work to put them in operating condition.

Blowers are operated with either turbines or electric motors. Turbine blowers may prove advantageous in stoker- or hand-fired boilers, as the exhaust steam from the turbine can be used for feed-water heating, process work, or plant heating. Dust and ashes are likely to be drawn over the turbine by the fan and deposited on the bearings, thus causing excessive wear. For this reason, an oil filter should be attached to the blower to remove these abrasives. Where compactness is desired, a motor-driven blower may be desirable. Again a motor-driven blower may be satisfactory in mills where the boiler is employed only for heating purposes or where low-pressure steam is used. Either type of blower can be used with underfeed and chain-grate stokers, and oil burners.

Blowers will give satisfactory service for years, with the necessity of only a few repairs. In some cases, for example, blowers have given service for five or six years without any repairs. However, after long operation, bearings will need replacement. Purchase of a blower should, of course, be preceded by a thorough survey of boiler plant conditions.

Lighting Modernized

Linen Thread Co's. three-year program

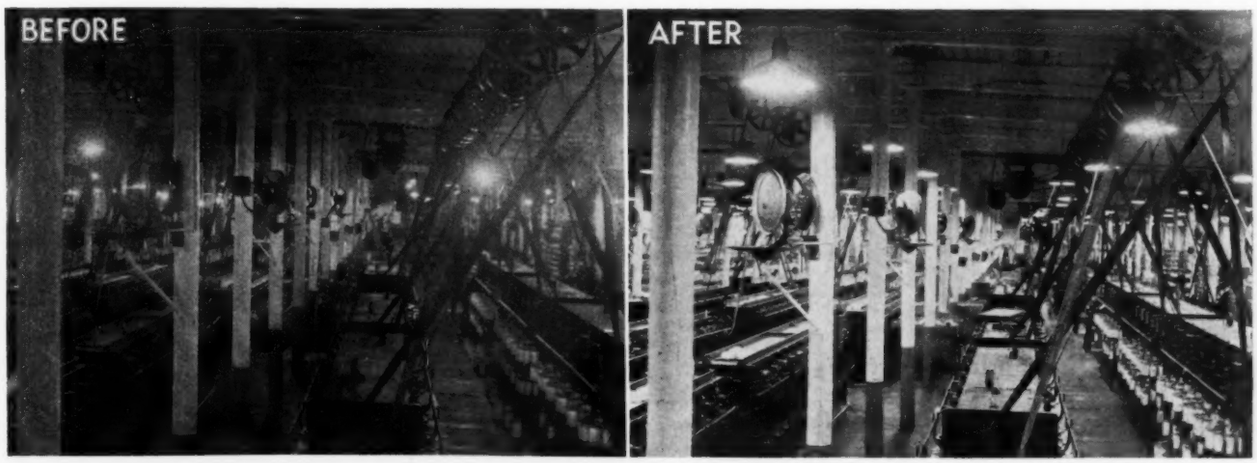
AN OUTSTANDING lighting program is that of Linen Thread Co., Inc., Anniston, Ala. This company is modernizing its lighting over a period of three years. Lighting in the first section of the plant was modernized in 1937, and the second section has just undergone modernization. The job will be completed when the third section is brought up to modern standards. Spreading out the lighting program over a three-year period permitted the concern to avoid a large capital expenditure at one time.

In the section just completed the illumination was stepped up from 3½ to 7 foot-candles to 28–30 foot-candles. Seeing conditions have been vastly improved.

In the modernization all open wiring was torn away and covered conduit installed. The old fixtures, which consisted of 495 100-watt shallow-dome reflectors, were replaced with 849 18-in. reflectors. Inside-frosted lamps, each of 300 watts capacity, were used.

In the old installation, all the lights had to be turned on or off at one time, due to lack of controls. In the new set-up separate or individual control is provided for each bay or working section, so that light can be used only where and as needed.

A study of the lighting problem was made by A. E. Massey, manager of the Anniston plant, and his ideas were worked out in cooperation with G. L. Morris, lighting engineer, Alabama Power Co., and P. L. Lindsley, master mechanic for the Linen Thread Co. Illustrations show twisting department before and after lighting was modernized.



Staple Cotton Fabrics

By JOHN HOYE
Fabric Technician with W. Harris Thurston, New York

This thirty-third installment of Mr. Hoye's series of articles on staple cotton fabrics, which began in the January, 1936, issue, continues his discussion of work-clothing fabrics.

DENIM

THE MOST important fabric of the work-clothing group is denim. Usually the weave is a 3-harness warp-face twill with the twill line to the right instead of to the left (the usual direction for warp-face twills). The coarser, heavier denims, because of the bulky yarn used, are made with four harness instead of three. Denims, like other warp-face cloths, are strong and serviceable; they are particularly strong in the warp, since this part of the fabric is subjected to greater wear than the filling.

The standard denim, known as white-back denim, is made with indigo-blue dyed warp yarn and gray or unbleached filling yarn. The warp yarn floats on the face and the filling floats on the back of the fabric—hence, the name "white-back denim." The characteristic blue appearance of the denim is obtained by the float of the warp yarns modified by the white of the filling yarns wherever these come to the face and show through.

Denims which have a more solid color face are made with a subdued white filling yarn spun from white and black fibers blended together. Also, there is a denim, made with brown warp yarn, known as brown denim. Other variations are made by using red or black filling yarns, and are referred to as red-back denim, etc.

The "D. & T." Denim

Still another variation is the double-and-twist denim, also known as "D & T" denim, the face of which has a solid blue effect, obtained by use of a mock-twist filling yarn. This yarn, which has a mottled or flecked appearance, is a single yarn spun from two ends of roving, one blue and the other gray or unbleached. This yarn is an imitation of a 2-ply yarn made of a white yarn plied with a colored yarn. In the double-and-twist denim, the twill line is made to run to the left to produce a more prominent twill effect.

Denims ordinarily have white selvages and usually are made 28 to 29 in. wide, in weights which vary from 10 oz. per yd. (1.60 yd.) to 4.57 oz. per yd. (3.50 yd.).

The "Faded" Denim

Denims of light pastel shades and softer finishes are referred to as "faded" denim, and are used by the women's sportswear trade for slacks, bush jackets, beach robes, etc. They are made in 36-in. widths, and weigh from 2.75 to 3.25 yd. per lb.

In the merchandising of denims and other work-clothing fabrics, as a rule the thread count is not mentioned—only the width and weight are stated. In heavier denims the terms "fine weave," "coarse weave," and "wide twill" are often used. The coarse weave and wide twill denims usually are 4-leaf twills.

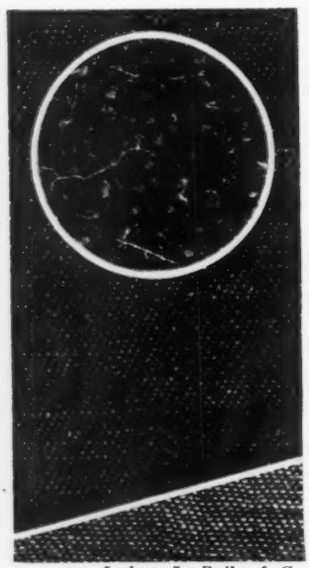
When denims are sold in the pre-shrunk finish, the finished weight usually is stated; for instance, 8 oz. finished pre-shrunk. Hence, there is no doubt as to the finished weight of the cloth being 8 oz. After regular finished denims are pre-shrunk, they usually are heavier and bulkier; for instance, a 2.20 regular mill finished denim would be approximately an 8-oz. finished pre-shrunk denim.

Warp yarns: 7s to 12s. *Filling yarns:* 8s to 23s.

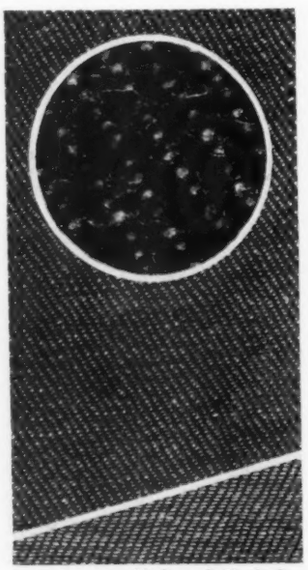
Examples of white-back denim—regular mill finish:
28 in. 68x44 2.20
28 in. 8 oz. fine weave
28 in. 8 oz. coarse weave
28 in. 9 oz. 4-harness

Examples of white-back denim—pre-shrunk:
28 in. 9 oz. finished pre-shrunk 70x49
28 in. 8 oz. finished pre-shrunk 72x50 wide twill 4-harness
28 in. 8 oz. finished pre-shrunk fine
28 in. 9 oz. finished pre-shrunk coarse

Examples of other denims—pre-shrunk:
28 in. 8 oz. black-back
28 in. 2.40 yd. brown-back
28 in. 2.20 yd. blue and gold stripe
28 in. 2.80 yd. D & T denim
36 in. 74x50 2.75 yd. "faded" denim, 4-harness
28 in. 8 oz. finished pre-shrunk 71x55 striped denim
28 in. 2.20 yd. checked denim

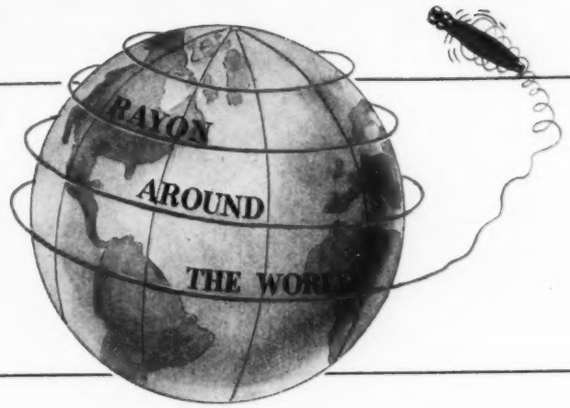


Joshua L. Baily & Co.
Fig. 1. White-back denim, 28 in., 3.00 yd., finished pre-shrunk, 68x40. Lower section shows reverse side of fabric



McCampbell & Co.
Fig. 2. "Faded" denim, 36 in., 80x50, 3.00 yd., 4-leaf twill. Lower section shows reverse side of fabric

TEXTILE WORLD'S FOURTEENTH ANNUAL



RAYON YEAR BOOK NUMBER

Whither with Rayon?

By DOUGLAS G. WOOLF

THE THOUGHT that impelled the editors of TEXTILE WORLD to adopt "Rayon Around the World" as the theme of this, their 14th Annual Rayon Number, means much more to them than a slogan. It carries the idea of Rayon, the Universal Fiber.

So far as the world, geographically, is concerned, this is not a product of the imagination. Rayon *is* a universal fiber, in that it is used in all important textile-producing countries. Moreover, it is a universal fiber, in that it extends to all divisions of the world textile industry. To that extent—as Arthur Besse states elsewhere in this issue—it has wiped out the lines of demarcation between the long-established old-line branches of cotton, wool and silk textiles.

How much more of a universal fiber is it to become? Are we eventually to change over to a completely synthetic industry?

That is no mere academic question. It is an intensely practical one to those divisions which are just now beginning to feel the major impulse of rayon's competition.

To the silk weaving industry, however, it *is* an academic question. Those old silk companies are today primarily rayon weaving concerns. If, only 15 short years ago, those outfits could have foreseen the extent of the revolution which was impending, they could have adjusted themselves to the change much more speedily and would be today in a far healthier position. Even the fact that, as Miss Blunt points out in this issue, silk manufacturers are now *not* silk manufacturers but weavers of fine fabrics, doesn't mitigate the losses which that branch of the industry has suffered through the upheaval.

And so, those branches which have not yet undergone the complete change may well ask themselves when, as well as if, that change is coming.

The cotton division, with the exception of the sales yarn section, has probably gained by the transition to date. It has added to its domain part of a great rayon weaving industry which might have stayed in the silk domain if that branch had employed an oracle. However, as Dr. Murchison points out in his thoughtful analysis in this issue, that still leaves the great problem of southern agriculture, based on cotton, to be solved. This is further complicated by the development of non-cellulose fibers. The mysterious Fiber No. 66, for example!

BUT IT SEEMS to this writer that the most immediately practical rayon problem is that faced by the woolen and worsted industry. Stated bluntly, that problem is this: Does the wool division now face the same revolution which the silk industry faced in 1923? If it does, it should begin to study the lessons of the last 15 years.

The wool industry can probably minimize the impulse given to the use of staple fiber by the national emergencies in Italy, Germany and Japan. It can possibly minimize the importance of casein fiber as an "artificial wool." But it cannot minimize the increasingly satisfactory use made of staple and filament rayon in women's dress goods and men's-wear summer clothing—nor the threatening use of rayon in men's year-round clothing.

Will the woolen and worsted mills permit the cotton mills to take over this business—or will they adjust themselves to the change more promptly than did the silk industry?

Personally, we have no money on either horse. We don't care which wins. *But*, if we were a wool manufacturer, we would try to face this question realistically.

Again personally, we believe—as we have said many times before—that eventually we may have practically a completely synthetic industry. That belief is based on our knowledge of what synthetics have done to natural materials in other fields: the dye industry, for example. Uniformity, in quality and in supply, is the great asset of the synthetic.

However, whether we are right or wrong in this hunch, we *know* that we are 100% right in urging mental flexibility as the sine qua non of the wool industry.

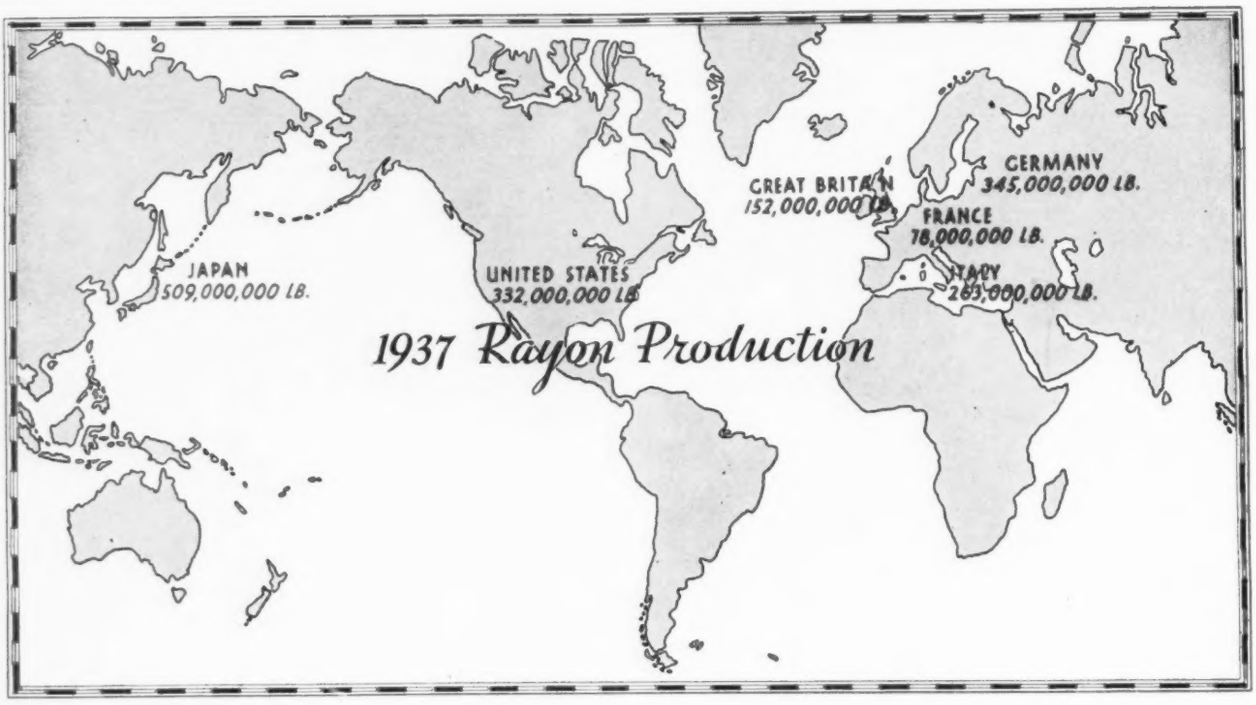
Furthermore, as rayon becomes the universal fiber in the fullest meaning of that phrase, the consumer's interest must be held paramount. Not that we love the dear consumer any more than—or half as much as—we love a textile manufacturer. But we happen to know that consumer satisfaction is vital if a product is to succeed.

To insure consumer satisfaction, wool manufacturers and all others who are now venturing into new realms of synthetic use, must not regard staple fiber or any other form of rayon as an adulterant. They must produce fabrics, plainly labeled as to content, which will stand or fall—not as simulated wool or cotton or silk fabrics—but as 25%, 50%, or 100% synthetics. This is not consumer philanthropy—it is manufacturing horse-sense.

Rayon Around the World! How completely around? We don't profess to know, positively. But, as indicated previously, we have a pretty sure hunch. And we invite our readers to share—not the hunch but the implications of that hunch—with us. It may save them from losses—and even from bankruptcy—in the *next* 15 years.

Rayon Around the World

A summary of present status in each important producing country—and future outlook



By J. GUTHRIE OLIVER
London, England

GREAT BRITAIN—The Government has no concern with the synthetics industry in Britain, although, as there is an excise duty on continuous filament yarn, there is a corresponding drawback on export of fabric which acts in a small way as a kind of subsidy. There is no excise duty on staple fiber and none on cotton, silk or wool.

Wood-pulp is the primary raw material although cotton linters are used in part. The wood-pulp comes primarily from Canada and Norway, but there is growing favor for Swedish and Finnish pulps.

For 1937, over 80% of total British consumption was viscose and the remainder acetate, neglecting the small cupra consumption. Of the total, 61% is allotted to broad-woven viscose goods and 4% to acetate qualities; the hosiery trade (almost entirely viscose) accounts for 10%; in warp and other knit fabric, acetate and viscose account for 10% each; remaining 4 or 5% covers miscellaneous.

Progress in new applications is steady rather than spectacular. In staple fiber promotion, Courtaulds (the sole manufacturer of staple) have equipped typical mills for demonstration in both cotton and woolen districts.

British export trade in rayon and rayon fabrics is frankly disappointing. The great Indian market has been usurped by Japan and though British goods enjoy popularity in some markets, their prices are too high after duty and other charges have been paid to permit volume. In the Dominions and in British Colonial markets, with quotas or preferences, better business is done and concentration is turning toward these outlets.

It is the home market, however, to which British rayon industries must continue to look. The capacity of the industry has been enormously increased by the building of the new Courtauld plant at Preston, and there is no reason to anticipate any shortage for some years.

This article represents a quick glimpse at rayon "around the world." Prepared by our Manchester (Eng.) rayon correspondent, it gives a brief picture of the status in each important producing country, and a broad observation as to the future of synthetics in the world as a whole.

JAPAN—In no country has development of the synthetic fiber industry been more rapid than in Japan. Large as is the production of filament yarn, it is still below capacity. In staple fiber the output rise has been meteoric, yet there are plans for new and extended plants.

As a result of "The China Incident" it has been necessary under Government compulsion to restrict

imports of wood pulp. These come mainly from the United States, with increasing shipments recently from Norway, Finland and Sweden. Every effort has been made to utilize home supplies of timber and other sources, but the struggle has been difficult, and, if, as seems likely, the war in China is prolonged, there must be continued rayon curtailment.

This may not mean actual reduction in total synthetics produced, but rather a reduction in the proportion of total machinery allowed to be operated. It is in Japan's interest to choose synthetic rather than natural fibers. New regulations are enforcing mixing staple with cotton and wool for the home trade.

Export trade is encouraged in the best channels for obtaining needed foreign credits. Trade with the countries of North China which constitute the yen bloc is frowned upon as not productive. If Japan emerges from her present troubles economically sound, the outlook for its synthetic industry is bright indeed, and consequently a threat to high-wage countries. However, it is almost certain that the war will result in higher costs all around, and in this respect the western nations will secure indirect benefit.

GERMANY—Development of the staple-fiber industry under the four-year plan in Germany is proceeding apace. Here, as in Japan, every nerve is being strained to utilize synthetic in place of natural fibers for reasons concerned with the trade balance. Moreover Greater Germany, which includes the Austrian forests, has vastly superior timber resources to either Japan or Italy.

Types of fibers produced in Germany cover every grade of continuous filament and staple fiber known in America and others in an experimental stage which it may never be economic to produce in America. There is no information officially given regarding uses of fibers in Germany, but by Government order staple fiber or rayon must be utilized in all manner of cloths for the home trade. Manufacturers are being driven to distraction by the instructions they get. There will be a serious reaction if and when normal trading is resumed.

Export trade has been fostered in every way possible. It is not admitted that actual Government subsidies are provided, but there is certainly equivalent assistance. By clever manipulation of the mark, Germany succeeded in developing a large trade in yarns and piece goods, but the world situation recently has caused something of a setback.

Germany is not likely to alter her policy of fostering the synthetic at expense of the natural fiber, and therefore some years of continued development lie ahead.

ITALY—This is the third of the autocratic countries and much the same remarks apply as for Germany and Japan. When the League of Nations applied the abortive sanctions, Italy made plans for self-sufficiency. Her huge purchases of pulp from Sweden are still an important factor, but she is using every effort with fair success to supplement these by home supplies.

Much is said in the press regarding "Lanital," but this is as yet a small item and its future development on a mass scale is at least uncertain.

Since the "sanctions" period. Italy has been steadily regaining her position as an exporter, and, while yarns suffered some setback this year, with the advantage of low labor costs she has done remarkably well in the sale of piece goods, particularly cotton mixtures. Her exports for the first half of this year were almost double those in the corresponding period in 1937.

OTHER COUNTRIES — Following further depreciation of the franc and more settled labor conditions, there has been improvement in the rayon industry in France.

During 1937 also there was big improvement in Holland, but latterly stocks are high and production schedules have been much reduced.

There is little information available regarding output in the Soviet Union, but earlier difficulties are apparently being surmounted and production is reaching substantial proportions.

Belgium, Poland and Switzerland followed much the same course as the other Continental rayon producing countries, but Czechoslovakia has suffered from disturbed political conditions.

Norway, where there are excellent supplies of pulp, is now producing rayon herself.

In Roumania there has been considerable increase in rayon output, while Turkey is now also among the producing countries.

In South America, Brazil has kept up her output, and development has been marked in the Argentine.

GENERAL SURVEY — In considering the outlook, it is of outstanding importance to divide the producing countries into two groups. In the first group are the totalitarian States, notably Japan, Germany and Italy, where production is being stimulated for economic purposes at an unhealthy rate. In the other group we have countries, the chief of which are United States, United Kingdom and France, where production is developing on steady lines in accordance with the usual laws of supply and demand.

Failing any major change in world political conditions, we may anticipate that for some time the output of synthetics will increase in Germany, Italy and Japan, although with the last named the war in China and its repercussions may have important effects.

In the other countries of the world, there appears no reason why the output should not also increase, though in continuous filament yarn, the increase will be lower than during the last decade.

Generally speaking, demand appears to follow a two-year cycle, and we may anticipate in the United States and the United Kingdom a marked improvement in 1939. The closing months of 1938 may witness the beginning of this.

As for staple fiber, although we cannot anticipate outstanding increases in the countries where cotton and wool are relatively easy to obtain, there is no doubt it has important uses and will increase in popularity.

There has been little or no attempt to produce rayon in many of the largest markets of the world. Consumption in British India, for example, is enormous, but Japanese competition, climatic difficulties and other causes have combined to prevent the starting of production there. There is, of course, a large output of rayon fabric in India made from imported Japanese yarn, and, subject to the usual ups and downs, this trade will continue to develop. Under present conditions a large export trade from India in rayon fabrics is by no means improbable.

The colossal market in China, Manchukuo and Korea has been well looked after by Japan. It is probable that rayon production will be started up in due course in North China.

Australia is another huge market without home production, but sooner or later that home-production will be undertaken.

The other great markets of the world, in all of which demand has not reached saturation point, are Iraq, Netherlands, East Indies, Philippines, Siam and South Africa. Gradually improving commodity prices may be expected to yield increased consumption of synthetics in these markets.

World Rayon Trends

An analysis of the actual and relative growth of synthetic fibers

By STANLEY B. HUNT
Textile Economics Bureau, Inc.

TO SHOW A bird's-eye-view of rayon's position in the world of textile and industrial fibers over recent years, Table I has been prepared. A number of interesting points stand out here.

First are the differences in regularity of fiber production over the period. Thus wool, mohair, and silk production are remarkably constant and show little absolute trend. The production of cotton, on the other hand, displays some wide variations over the period; similarly, in turn, because cotton is the most important fiber poundagewise, it is of prime importance in determining total fiber production. Outstanding, of course, is the rapid growth of world rayon production, the output of this fiber more than quadrupling from 1930 to 1938.

Second, it will be seen that this table has been made in two parts, the top section to include five items from cotton to rayon and the bottom section to cover four items from hemp to jute. To date, the principal use of rayon has been in textile-apparel; in fact, it is estimated that the men's and women's textile apparel use of rayon in 1937, most of the remainder total United States consumption of rayon in 1937, most of the remainder going into household uses and practically no rayon being used for industrial textile purposes.

A very substantial amount of cotton and wool, on the other hand, goes into industrial textiles such as automobile upholsteries and other fabrics, tire cords, filter cloths, canvas and belting, etc. Hemp and jute are almost entirely industrial fibers, as opposed to the textile-apparel use. So the primary comparison of rayon's growth with the production of other textiles was made against the four fibers, cotton, wool, mohair, and silk, as shown in the top part of the table. This arrangement is not entirely accurate or satisfactory, as noted, but it is useful.

Rayon Production by Countries

Analyzing the growth of rayon further, Table II was prepared to show the different rates of rayon production increase in the key producing countries of the world. A division was made here, and subtotals shown, as between the nationalistic countries (Japan, Germany, and Italy) on the one hand and all other countries on the other hand.

Outstanding in this table is the fact that an increase in world rayon production from 1937 to 1938 is indicated, in spite of recent direful predictions of a substantial decline. These 1938 figures have been estimated carefully and conservatively, although they obviously must still be regarded as estimates; the speed with which production rates can be, and are, changed by government decree in a nationalistic economy are only too well known.

There are two principal reasons for this increase in world rayon production from 1937 to 1938. First is the fact that a stalemate, or even a substantial decline, in rayon yarn production in certain countries is offset more or less by a universal rapid advance in rayon staple fiber production.

A second and corollary reason is the continuing drive of the nationalistic economies to substitute the man-made fibers for the older fibers, the importation of which requires foreign exchange money not readily available. This point is brought out by the arrangement of Table II which shows that the "non-nationalistic" countries' rayon production (lower subtotal) is expected to decline about 10% from 1937 to 1938. But this decline is more than offset by the increase of approximately 14% in the combined production of Japan, Germany, and Italy. It is emphasized again that these 1938 data are merely estimates, but the *trends* noted are unmistakable.

IN MAKING UP *the accompanying tables, all rayon data, as well as other United States fiber data, have generally been drawn from the* Rayon Organon. *For much of the data on the non-rayon fibers in countries other than the United States, the writer has drawn heavily on the 1938 edition of* Industrial Fibers *as issued by the Imperial Economic Committee in London.*—Author

Textile Fiber Availability

Table III has been created to show some trends in textile fiber usage in various countries. In the case of the United States, the data show actual consumption; in all other countries, the figures represent the amount of *fiber* available for domestic fabrication (domestic production, plus imports, less exports). Whether or not there are large subsequent exports of these fibers in *cloth form* (i.e. by Japan) is considered later. The concept of this Table III data is that it represents the respective amounts of the various fibers available to weavers, knitters, and others for fabrication in 1930 and 1937. In many cases, the data represent only estimates.

The trends of fiber usage here are clear. In the nationalistic countries especially, the use of rayon relative to the total consumption of new textile fibers has increased from a few per cent in 1930 to 20 or 30% of the total by 1937; in these cases, cotton seems to have lost the most ground, probably due to the difficulties of obtaining foreign exchange and to a desire for national self-sufficiency.

In the United States, United Kingdom, and France, however, it appears that silk and wool have been the main items displaced by rayon on a strictly competitive basis (as due in turn to style trends, price, etc.); the use of cotton in these three cases appears to have been affected little or none by rayon. While this difference in the fibers "displaced" by rayon as between the nationalistic and the non-nationalistic countries might be expected, as noted, nevertheless the extent of this "displacement" in the various countries is especially significant.

Table IV shows the estimated final consumption of rayon products in certain countries of the world during 1937, together with population data

and the pounds of rayon products consumed per capita. It is emphasized that these data are approximations only.

The rayon data of this Table IV, representing "final" consumption in the various countries, differ from the Table III material which represents the rayon fibers available for use by fabricators in the various countries. The most notable difference between these two tables occurs in the case of Japan which is a very substantial exporter of fabricated rayon goods.

The per capita consumption of rayon in the various countries here is a function of at least two determinants. First is the previously-noted effect of the displacement of other textile fibers by rayon, whether or not that be done by government manifesto or by strictly competitive methods. Second is the standard of living of the country in question and its "normal" total consumption of textiles per capita, together with the correlative point of whether a large part of the textile fabrics used are purchased or are made in the home.

The table suggests that an increasing world consumption of rayon and rayon products may be expected over a period of years. This will be true especially in countries where the per-capita consumption of rayon goods is low, and regardless of whether the country in question does or does not produce the rayon filaments themselves.

By way of summary, two points seem reasonably well indicated in rayon's future. First is a very substantial further growth of rayon staple production over the world. The filament rayon production volume is expected to increase at a somewhat slower rate, inasmuch as it is an older commercial product and its production is already sizable.

The second trend to be anticipated is a wider use of all types of rayon in industrial fabrics, in men's clothing, and in household textiles. Rayon consumption over the world to date especially in the "non-nationalistic" countries, has been highly concentrated in the women's apparel field, this outlet alone comprising probably 70 to 80% of the total rayon volume in most countries. For the future, one can see an increasing use of rayon in men's clothing, such as summer and winter suitings and sports clothes, and in haberdashery such as underwear, shirtings, etc. Household textiles similarly are a large potential field for rayon, not only in domestics such as sheets and pillow cases, but also in upholsteries, draperies, rugs, towels, etc. Finally, the market for rayon industrial fabrics such as tire cords, automobile upholsteries, canvas and duck, bags, coated fabrics, etc. has barely been explored, although recent favorable developments in some of these fields hold forth great promise.

Thus the market for rayon constantly widens over the world, both because of new rayons being developed and because of a wider usage of present types of primary rayon products. With prospects such as these, one may safely say that the zenith of rayon's production growth still is many years in the future.

Table IV—APPARENT FINAL CONSUMPTION OF RAYON PRODUCTS BY SELECTED COUNTRIES IN 1937*

	CONSUMPTION (MILLION POUNDS)	POPULATION (MILLIONS)	PER CAPITA CONSUMPTION (POUNDS)
WORLD TOTAL	**1,800**	**2,100**	**0.9**
Producing Countries			
Germany	353	67	5.3
Italy	157	43	3.7
Japan	329	99	3.3
United Kingdom	115	47	2.5
United States	305	129	2.4
Canada	20	11	1.8
France	66	42	1.6
Argentina	12	12	1.0
Brazil	8	43	0.2
Non-Producing Countries			
Australia	20	7	2.9
Chile	2	5	0.4
British India	100	275	0.4

* For the United States, domestic consumption of rayon (yarn plus staple fiber) plus imports and less exports of rayon fabricated goods: for all other countries, domestic production of rayon (yarn plus staple fiber) plus imports and less exports of rayon fabricated goods.

Table I—TOTAL WORLD FIBER PRODUCTION

(In Millions of Pounds and Percent)

	1930			1934			1937			1938 (Est.)		
	LBS.	%	%	LBS.	%	%	LBS.	%	%	LBS.	%	%
Cotton	12,420	80.9		11,346	78.1		18,259	81.0		11,000	71.7	
Wool	2,320	15.1		2,190	15.1		2,325	10.3		2,300	15.0	
Mohair	37	0.2		34	0.2		33	0.1		35	0.2	
Silk	130	0.8		125	0.9		121	0.5		120	0.8	
Rayon	457	3.0	2.0	824	5.7	4.0	1,817	8.1	6.2	1,900	12.3	8.7
SUBTOTAL	15,364	100	68.2	14,519	100	70.7	22,555	100	77.6	15,355	100	69.8
Hemp (Leaf)	902		4.0	936		4.6	1,204		4.1	1,250		5.7
Hemp (Bast)	960		4.3	630		3.1	752		2.6	750		3.4
Flax	1,264		5.6	1,356		6.6	1,466		5.0	1,450		6.6
Jute	4,050		17.9	3,088		15.0	3,120		10.7	3,200		14.5
SUBTOTAL	7,176		31.8	6,010		29.3	6,542		22.4	6,650		30.2
GRAND TOTAL	22,540		100	20,529		100	29,097		100	22,005		100

Raw Cotton, Raw Wool (Clean Basis), Mohair (Clean Basis), Raw Silk, Rayon (Yarn plus Staple Fiber), Hemp (Leaf or Hard), Hemp (Bast or Soft), Flax Straw, and Jute. "Production" of reworked fibers not available or included here.

Table II—PRODUCTION OF RAYON (YARN PLUS STAPLE FIBER) BY SELECTED COUNTRIES

(In Millions of Pounds and Percent)

	1930		1934		1937		1938 (Est.)	
	LBS.	%	LBS.	%	LBS.	%	LBS.	%
Japan	37	8	158	19	509	28	550	29
Germany	63	14	101	12	345	19	450	24
Italy	67	15	107	13	263	15	275	14
SUBTOTAL	167	37	366	44	1,117	62	1,275	67
United States	128	28	211	26	340	19	300	16
United Kingdom	48	10	91	11	152	8	140	7
France	51	11	62	7	78	4	70	4
All Others	63	14	94	12	130	7	115	6
SUBTOTAL	290	63	458	56	700	38	625	33
WORLD TOTAL	457	100	824	100	1,817	100	1,900	100

Table III—FIBERS AVAILABLE FOR CONSUMPTION IN SELECTED COUNTRIES FOR 1930 AND 1937*

(In Millions of Pounds and Percent)

	GERMANY (1)				ITALY (2)				JAPAN (3)				UNITED STATES (4)				UNITED KINGDOM (5)				FRANCE (6)			
	1930		1937		1930		1937		1930		1937		1930		1937		1930		1937		1930		1937	
	lbs.	%	lbs.	%	lbs.	%	lbs.	%	lbs.	%	lbs.	%	lbs.	%	lbs.	%	lbs.	%	lbs.	%	lbs.	%	lbs.	%
Cotton	635	70	540	51	451	79	365	61	1,262	91	1,809	74	2,610	85	3,630	84	1,140	73	1,599	75	795	67	612	68
Wool	202	22	169	16	88	16	67	11	60	4	138	6	263	9	354	8	380	24	403	19	340	29	209	23
Silk	4	..	3	..	2	..	3	..	36	3	37	2	76	2	54	1	2	..	5	..	10	1	5	1
Rayon	72	8	355	33	30	5	170	28	35	2	445	18	119	4	310	7	40	3	125	6	35	3	70	8
TOTAL	913	100	1,067	100	571	100	605	100	1,393	100	2,429	100	3,068	100	4,348	100	1,562	100	2,132	100	1,180	100	896	100

* Meaning of "Fibers Available for Consumption" in detail (numbers below refer to countries as identified at head of above columns):

a. **Cotton:** 1, 2, 3, 5, and 6 — retained imports of raw cotton; 4 — domestic consumption of raw cotton.

b. **Wool:** 1, 2, 3, 5, and 6 — estimated supply of raw wool (clean basis); 4 — domestic consumption of raw wool.

c. **Silk:** 1, 5, and 6 — retained imports of raw silk; 2 and 3 — retained imports of raw silk, plus domestic production, less exports; 4 — domestic consumption of raw silk.

d. **Rayon:** 1, 2, 3, 5, and 6 — domestic production of rayon (yarn plus staple fiber) plus imports and less exports of this primary product; 4 — domestic consumption of rayon yarn plus staple fiber.

What Does Rayon Mean—

To the cotton industry? To the wool industry? To the silk industry?

WE ASKED a spokesman for each of the three major natural-fiber branches of the textile industry—cotton, wool and silk—to put down briefly and frankly what they really think rayon means to their respective divisions. Not merely what rayon has already meant but what it promises for the future—whether its effect be to displace the natural fiber, or to supplement it, or to expand it—or to do some of all three.

The replies are published in the succeeding pages.—*Editor.*

What Rayon Means to

THE COTTON INDUSTRY

By DR. CLAUDIUS T. MURCHISON*
President, Cotton-Textile Institute

THE age-old, relentless, universal drive to produce more and more cotton has faltered and may possibly have come to a full stop. Unless all signs are misleading, world consumption of cotton appears to have reached or passed its zenith. I speak advisedly when I say that the fate of cotton as a natural fiber, spun, woven and used in the customary manner is hanging in the balance. As a textile industry we will continue undiminished in structure but we may not be to so great an extent a cotton textile industry.

The inroads made into cotton are not shown clearly in the statistics for the cotton industry alone; it is necessary to unite the record of competing fibers, and particularly synthetic fibers.

In 1927, rayon yarn production in the United States was 75,500,000 lb. By 1937 it reached 332,336,000 lb. or more than four times the output of 1927. Incidentally, during the same period the output of combed cotton yarn declined from 160,000,000 lb. to 122,000,000 lb.

The Textile Economics Bureau estimates that in 1937, 230,000,000 lb. of rayon were manufactured into women's wear as compared to 925,000,000 lb. of cotton used for the same purpose. This estimate gives to rayon an importance of 25% as compared to cotton in supplying women's apparel. Although this ratio of one to four is in itself impressive, a far more important fact is the speed with which it has been accomplished. Moreover, recent technical advances in rayon production and treatment have been revolutionary and show no signs of faltering. The continued upward trend of that article seems assured.

Dr. Claudius T. Murchison

In discussing the competitive relationship between cotton and rayon, my remarks carry no resentment. On the contrary, I have only the highest admiration for the rayon industry's resourcefulness and success. My purpose is merely to recognize the facts. If we are to retain our present stature as a cotton manufacturing industry, it is important for us to know why our competitors are continuing to expand.

No industry ever began its career with a viler product and with a more discouraging outlook than did the rayon industry. In order to succeed, it was necessary to employ great scientific skill, expensive laboratories and high-cost capital equipment. These requirements had the effect of limiting the number of enterprisers in this field to a comparatively small group. These limiting factors became increasingly important as the industry progressed, making it more and more difficult for new units to be formed with the final result that rayon yarn producers are small in number but large in individual size.

This type of industry structure not only made possible large-scale research effort and the economies of mass production; it also permitted what might be termed a merchandising sponsorship of the goods produced all the way from the primary producer to the final consumer. When this careful nurturing of merchandising methods and standards is combined with the highest type of scientific research unremittingly employed, we have the secret of the rayon industry's success.

This brings us to a fundamental question: Will it be more profitable for us to oppose the diminishing importance of cotton or to follow the line of least resistance and unite ourselves with the substitutes?

It is a significant fact that rayon staple can be a satisfactory raw material for the spinning mills. It has been amply demonstrated that rayon yarn can be woven satisfactorily on cotton looms. It is also true that cotton converters are learning the art of converting rayon fabrics, and many of them already have rayon departments in their organizations. Finishers are likewise very adaptable. In fact, looking all the way from the spinner of the raw material to the retailer of the finished product, we find no economic motive strong enough to resist the gradual inclusion in the industry of this new competitive material.

From the standpoint of the individual business unit, there is no reason why it should not occur if it is in line with sound business judgment. If such action be taken only by the occasional mill now and then, here and there, the result will loom large by the end of a decade. But from the standpoint of individual business organization such an outlook is neither alarming nor disquieting. If there is a dark side to the economic consequences, it

* An abstracted and revised version of the address made by Dr. Murchison at American Cotton Manufacturers Association convention.

will be borne chiefly by the cotton growers as a group and by the South as a region.

I am sure that, from the latter viewpoint, we find the economic motive which will justify our striving to the utmost to solve the cotton problem as such. Without resisting the use of synthetic fibers, we must nevertheless help cotton to hold its own—through research, through improvement in merchandising, through coordination of all the groups concerned, and through promotion activities. If we do this the epitaph of cotton need not yet be written.

What Rayon Means to

THE WOOL INDUSTRY

By ARTHUR BESSE
President, National Association of Wool Manufacturers

THE ADVENT of rayon and its use in combination with wool and other fabrics presents an entirely new problem and at the same time offers new possibilities to the wool textile industry.

In the past, manipulated woolens have been made largely by utilizing cotton fiber and silk noils. In the main, both of these ingredients should be considered as adulterants. Rayon as used today, principally in the form of staple, has few of the characteristics of an adulterant and has succeeded not only in displacing other fibers which have been so used but has, in a measure, reduced the wool content of some blended fabrics. Rayon does not, of course, possess the same qualities as wool and it seems questionable if some of the present attempts to make it "look like" or "feel like" wool are altogether wise. A product which looks like or feels like something else is almost never as satisfactory as the article it simulates and will seldom command as high a price despite the salesman's assertion that it may be "just as good."

But rayon is a fiber that can be produced in and adapted to a wide variety of types both as the sole fiber of which a fabric is made and as a fiber to be combined with others to make new and different effects in fabrics for varied uses. So used it will permit the designing of fabrics particularly suitable for certain purposes as distinguished from merely cheaper substitutes for present constructions which are and should continue to be eminently satisfactory for the purposes for which they are now used. If used to develop new products and tap new markets rayon and wool blends will supplement rather than displace fabrics made exclusively of wool.

There is a parallel in the use of the newer types of metallic alloys. The use of such alloys has not reduced the consumption of pig iron or adversely affected the steel industry. On the contrary the development of such products as stainless steel, tungsten, chromium, molybdenum, etc., has opened and developed new markets and has considerably expanded the use of iron ore.

Arthur Besse

There is no reason why the wool textile industry, while continuing the development of those markets best served by all-wool fabrics, cannot skillfully and judiciously blend rayon with wool and achieve a myriad variety of fabrics on a scale hitherto impracticable and perhaps at prices hitherto impossible. With an intelligent analysis of the possible markets and an active and clever development of new products, rayon will provide a possibility for increasing the use of wool and not assume a position as a mere substitute for and a competitor of wool fiber.

Such a development cannot be achieved if efforts are made to pass off rayon as being something other than what it is. Its use should not be camouflaged; its limitations and its virtues should be frankly acknowledged, and when used in blends with other fibers, its presence should be clearly indicated.

A factor which has so far appeared to escape attention is that rayon, because of its adaptability for use in fiber blends, may have an important influence in breaking down the present lines of demarcation between the different branches of the textile industry. At present the industry is divided principally in accordance with the fiber used, that is, the cotton textile industry, the wool textile industry, the silk textile industry, etc. With a wider use of blended fabrics by all of these several branches, it is not inconceivable that there may be a different kind of division in the industry with less emphasis on the particular type of fiber used and more emphasis on the particular market served.

Such a new division, if and when it comes, would seem offhand to offer advantages from a selling and merchandising standpoint and perhaps difficulties and complications from a manufacturing standpoint. I hesitate to predict that it will or will not come but it is at least a possibility which will have to be considered and watched if it is to be availed of as a new opportunity rather than accepted merely as one more disturbing possibility for an already harassed industry.

What Rayon Means to

THE SILK INDUSTRY

By I. L. BLUNT
Secretary, National Federation of Textiles, Inc.

CHIEF suppliers to the vast cutting-up trade, the silk manufacturers have developed to a fine point the supplying of beautiful fabrics, at a variety of prices to suit the pocketbook of every American woman who wanted a silk dress. This has been especially true in the period following the World War, during which rayon, or as it was known then, "artificial silk," first began to get beyond the experimental stage. Coarseness of the original fiber

and its lack of adaptability for fine weaving slowed up its adoption by the silk trade until the development of the acetate yarns. It was here that the art of the silk weaver became valuable and since that time rayon has gradually displaced silk in the mills originally engaged in silk weaving so that today the silk manufacturer is a fine fabric manufacturer rather than a specialist in one fiber or another.

Irene L. Blunt

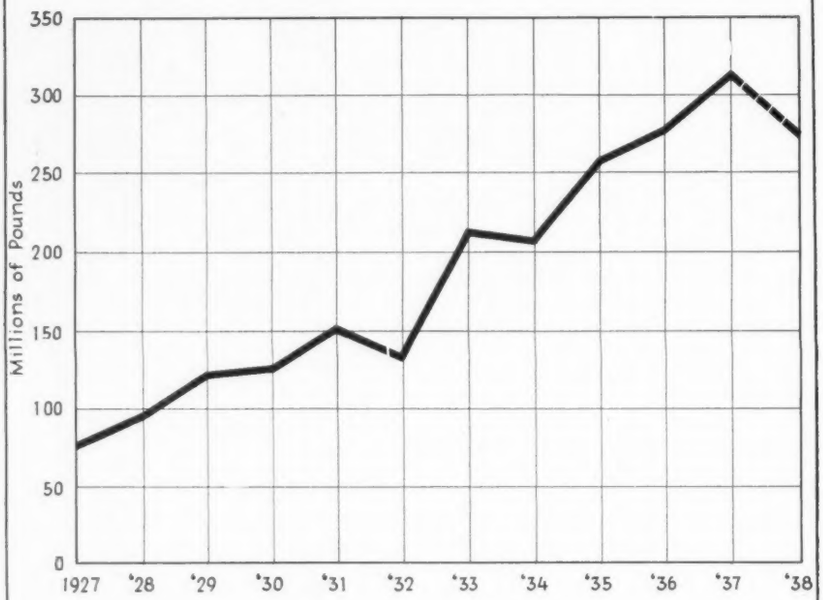
This transition period brought many problems to the silk manufacturer and taught him many lessons. Perhaps the most important of these are: To keep an open mind on new trends, and, most particularly, to be *fabric* conscious and not *fiber* conscious. He has learned the importance of avoiding too limited a viewpoint, and of maintaining policies sufficiently elastic to permit such quick readjustments, as the constant changes of the industry may demand. These lessons represent real gains made by the silk manufacturer and he has strengthened his position accordingly.

Then, too, the versatility of the silk weaver in creating new constructions, new weaves, new effects either with rayon alone or with combinations of silk and rayon, has resulted in an infinite variety of new cloths that should, it properly merchandised, bring profit to the manufacturer and satisfactory sales to the garment maker and retail store. It would appear from present indications that this will be even more true in the future.

Recently a study was made of silk and rayon yarn consumption by 20 identical mill corporations in the uptown market. Taking an index figure of 100 representing the daily average consumption in 1929, we find that the consumption of silk during 1936 showed an index of 51 and rayon of 435, making one-half as much silk as in 1929 and nearly four and one-half times as much rayon. In 1937, this difference was even greater as the index for silk dropped to 47 and the index for rayon rose to 543. In the first six months of 1938, reflecting a drop in the production of all fabrics, the index figure for silk was 30 and that for rayon 374.

As a possible added incentive to the use of rayon rather than silk in the next few years are the pending rules of the Federal Trade Commission regarding detailed description of the weighting of silk fabrics. The use of silk primarily lies in the underwear and lining trade at the present, in both of which weighted silks are strongly in demand. It may be that manufacturers in preference to complying with the costly misleading labeling required by the commission will prefer adopting rayon as a medium in which to work. Rayon then has been the means of the silk industry using its ability to make fine fabrics, in the creation of new and interesting media. With the development of finer sizes and closer approach to many of the properties of silk, it is likely rayon will continue the chief fiber used in the old silk industry.

U. S. RAYON PRODUCTION ESTIMATES



INDICATIONS point to a production of approximately 275,000,000 lb. of filament rayon yarn in this country in 1938, as compared with 312,000,000 lb. in 1937. This decline of 12% is remarkably little when one considers the state of the textile industry during the first half of this year.

Domestic output of staple fiber, on the other hand, should increase by 50% in 1938 over 1937. This would mean a total of 30,000,000 lb. this year, against 20,000,000 lb. last year.

If these estimates prove to be correct, the total of both filament and staple in 1938 will be 305,000,000 lb. against 332,000,000 lb. last year—or a decline of 8%.

The chart above shows the production of filament rayon in the United States in recent years—this year being estimated, of course.

Rayon Staple

And other new synthetics

lend fresh aspect to the battle of the fibers

WORLD PRODUCTION last year of rayon staple exceeded 600,000,000 lb. Output of Lanital steadily increases in Italy, and companies in eight other countries acquire licenses to manufacture this casein-base fiber. Spun glass filter cloths and other fabrics become a reality. Rayon cords give added life to bus and truck tires. New fibers having remarkable strength, elasticity, resistance to acids and alkalis, and other desirable properties emerge from the laboratory. With the development of these many new synthetics —most of which can be run on existing equipment—the battle of the fibers takes on a new aspect. Even greater changes in the textile industry than those which followed the introduction of filament rayon appear to be imminent.

Types of Staple

Germany, Japan, and Italy are by far the largest producers of rayon staple, accounting together for nearly 90% of the total world production. In those countries scarcity of natural fibers and desire for economic self-sufficiency have accounted largely for the rapid growth of the rayon staple industry. In the United States, on the other hand, there has been no real necessity for developing substitutes for natural fibers, and the increasing use of rayon staple in recent years has been due to the fact that the fiber possesses some desirable properties, such as softness, uniformity, good draping qualities, and the ability to blend well with wool and other fibers. Here viscose and acetate staple are being produced in deniers ranging from 1½ to 25 and in any lengths desired. A feature of the acetate fiber is that it has a stabilized wool-like crimp.

The chart which is shown on page 96 gives the characteristics of various makes of rayon staple fiber now available commercially in the United States. It is expected, however, that within the next few months other American companies will be in production and that some of those now making only the viscose type of rayon staple will expand their lines to include other types of rayon staple.

The types of rayon staple produced abroad are for the most part similar to those manufactured in this country. In addition, however, there are a number of special products. These include a cuprammonium staple, a viscose type fiber having about twice the strength of ordinary staple, a water-repellent viscose staple, an aerated staple which has a greater air content than the regular types, one having a crimp, and another having both a crimp and an irregular surface.

Synthetic Wool

The greatest technical progress toward production of a synthetic wool has occurred in Italy, where Lanital —a fiber derived from casein—was first made commercially in 1936. This material closely approximates wool in its chemical constitution and dyeing properties, but lacks the characteristic wool scales. Another casein-base fiber is being produced in Holland, under the name of Lactofil. Cisalfa, an Italian product, is a so-called animalized staple rayon spun from a viscose solution to which nitrogenous substances (probably casein) have been added; the material is dyed in a similar manner to cotton.

Recently two new viscose-base fibers which dye with wool dyes have been announced; these are Vistralan, a German product, and Rayolana, an English product. Superlena, a fiber specially prepared for blending with wool or for use in wool-like materials, has recently been brought out in Italy. In the United States a public patent has been granted covering the manfacture of casein-base fiber, but none is being produced commercially. It has also been demonstrated experimentally that fibers can be made from soy bean protein.

Although rayon staple is being manufactured in increasing amounts in this country, it appears illogical to some textile men to cut parallel filaments, intermingle them haphazardly, and then have to card them back to a parallel arrangement. As a result, efforts have been made in the Perlock system to take continuous filaments in sliver form and break them down on a special machine which produces staple fiber roving ready for use on the spinning frame. Another new product is Tubize No. 33, a continuous-filament acetate yarn which has certain of the filaments cut at regular intervals throughout the length of the yarn; the short protroding filaments which result from the cutting operation give a "clothy" effect to fabrics woven from this yarn.

In recent years much effort has been expended in this country on the development of new types of continuous-filament yarns having special characteristics. The greatest progress to date has been the production of exceptionally strong viscose-type yarns, such as Cordura and Tenasco, for use in cords for tires, belts, and industrial and other fabrics. The newest yarn of this type is produced entirely from cotton linters, rather than from wood pulp or a mixture of pulp and linters.

Latest Developments

Of unusual interest are two entirely new types of synthetics which are just emerging from the experimental stage and which are still shrouded in considerable mystery. The first of these is DuPont's Fiber 66, which has a remarkably high tensile strength and elasticity, making it particularly suitable for use in knitting full-fashioned hosiery; no details have been made public regarding the production of this yarn, other than the fact that it is not made from a cellulose base. The other is Vinyarn, a yarn produced from a synthetic resin of the vinyl type; among the unusual characteristics of this material are included its elasticity, water repellency, resistance to acids and alkalis, and electrical insulating properties.

Finally, should be mentioned spun glass yarns, which are being produced in this country by two companies. Introduced about three years ago, these glass yarns are now available in both continuous-filament and staple forms, and are finding use in the manufacture of filter fabrics, tapes and braids for the electrical industry, and other fabrics.

A Year's Progress

In manufacturing and merchandising rayon yarns and fabrics in the United States

OF THE MANY developments which have occurred during the last year in the United States in the manufacture and merchandising of rayon yarns and fabrics, that which has received the most attention is the increased production of rayon staple in both viscose and acetate types. Designers are utilizing rayon staple in a widening range of apparel fabrics; mill technicians are acquiring increased skill in handling rayon staple; machinery manufacturers are beginning to bring out equipment developed specifically for use on rayon staple. It is natural, therefore, that in a review of the year's progress in manufacturing and merchandising rayon yarns and fabrics, particular emphasis has been placed on rayon staple. On the other hand, it should be kept in mind that from the standpoint of quantity consumed, continuous-filament rayon is still far more important than is rayon staple. Likewise should be noted the development of some entirely new types of synthetic fibers which may be available in commercial quantities before another year has passed.

In the following articles the aim has not been merely to list each and every improvement in methods and machinery employed in the manufacture of rayon yarns and fabrics. Rather, the purpose has been to show the more important trends and advances in the production of continuous-filament and spun-rayon yarns, throwing, warp preparation and weaving, and dyeing and finishing. Many of the rayon yarn producers and the machinery builders have cooperated in the preparation of this symposium by furnishing information regarding their products, and the authors wish to express their appreciation of the aid afforded by those companies.

RAYON MANUFACTURE

New machines, raw materials, fibers, and yarns

By HAROLD DeWITT SMITH*

DURING the last year, as always, there have been announcements of enterprises organized to produce rayon pulp from various plant sources other than wood or cotton. Of greater interest to America, however, is the fact that hardwoods, such as maple, beech, and birch, have been added to the sources of wood pulp for rayon. Domestic rayon producers are said to be taking daily more than 100 tons of rayon pulp produced from hardwoods in Northern New England. Thus, the monopoly which northern spruce from Canada and New England once enjoyed as a rayon raw material is now shared not only by western hemlock (which is said to have provided 40% of the domestic consumption of rayon pulp in 1937) and more recently by southern pine, but also by northern hardwoods. Experiments with Douglas fir from the Pacific Northwest may add a fifth member to the rayon pulp family.

Cotton linters retain first place in the manufacture of acetate rayon, but further progress has been reported in the technical journals in the use of wood pulp for this process.

On the manufacturing side, the last year has seen the completion of plant expansions previously started, and the consolidation of positions previously attained by advances in technique, so that the rayon manufacturers on the whole have had little to report.

The few machinery developments which have been described during the year have been in the viscose field and reflect the perpetual drive to reduce costs.

A German manufacturer has coordinated the steps from steeping to spinning staple fiber so as to reduce the time required from 140 to 36 hr., and states that the resulting fiber is stronger and more uniform in its properties.

In the United States, a continuous shredder is now in use. The soda cellulose sheets are fed in at the top, and the crumbs, when shredded to the desired size, drop out continuously through a perforated bottom. One of these continuous shredders, with a power consumption no greater than one of the batch type shredders, has a productive capacity equal to four of the latter.

In the spinning department, a maker of spinnerets reports that further research work has resulted in improvements in the structure of alloys for spinnerets to give a more lasting surface finish and better holes.

The rayon plant utilizing a continuous process of making viscose yarn, construction of which was reported last year, is expected to be in commercial production before the end of 1938.

The controversy over cakes versus skeins for aftertreatment is still not settled, and both methods are being used in practice. However, two new American cake-treating machines have been described. In one of these which handles 1-lb. cakes, the emphasis is laid on a completely automatic control of time, temperature, and volumes of the treating liquids, so that one operator can wash, desulphurize, and bleach 100 lb. of yarn in 83 min. with a consumption of 30 gal. of water per pound of yarn. This machine operates on the centrifugal principle, and the cakes are completely submerged in order to equalize pressure during treatment.

The distinctive feature of the other cake-treating machine is the use of pulsating pressures. Large sized cakes can be handled, and the treating baths are forced through the cakes under a pressure which averages 18 lb., but which pulsates 300 times per minute. The combination of this pulsating flow with a kneading action produced by a hydraulic pressure on the cakes which fluctuates only a few times per minute softens the cake and hastens the washing action.

In the packaging department, a number of American manufacturers are experimenting with short, warp section beams or spools for the tricot knitting trade. This development originated in Germany and is praiseworthy for its attempt to eliminate one operation in rayon production:

* Textile Technologist, The A. M. Tenney Associates.

namely, the winding of cones or spools. However, the high cost of the beam inventory and the problem of packing the wound beams so that they can be shipped without danger of the yarn shifting are among those factors still to be solved.

The high-tenacity types of viscose yarn, introduction of which into tires and sails was reported last year, have been arousing interest for apparel purposes, particularly in men's wear and hosiery. The problem is to produce a yarn which is softer in nature than the tire yarn without sacrificing strength. In Italy, such a combination is said to have been attained in a yarn called "Autar."

Staple fibers and spun rayons have held the spotlight on the rayon stage. A survey of reports on European staple fibers shows a total of 52, including viscose, acetate, cuprammonium, and casein types. Special properties are claimed for each, but it is, perhaps, significant to note that 43 of them are from Germany and Italy, where the pressure for economic self-sufficiency is strongest. In the United States, there is as yet no such diversification of products, although intensive research is constantly improving the qualities of domestic staple fibers.

The principal effort both here and abroad has been to produce wool-like characteristics in staple fibers to supplement the cotton-like types which are already so widely used. To this end, the production of the suitable fiber sizes to simulate various grades of wool, the modification of filament shape and of fiber surface, and, above all, the production of a fiber having an inherent crimp or waviness, such as characterizes wool have been sought and, in some cases, accomplished. In this country, a crimpy acetate staple, called "Teca," was announced about six months ago.

The advent of casein fibers several years ago has stimulated an attempt to "woolenize" cellulose fibers by the incorporation of casein or other nitrogenous material in the spinning solution or on the fiber surface. Another development which reached commercial production during the year is a yarn known as "No. 33"; this is a continuous-filament acetate yarn in which the outer filaments have been cut at intervals to simulate a spun acetate rayon yarn.

During the year, a truly "artificial" silk made in Japan by dissolving waste cocoon silk and spinning it on rayon machinery made its appearance here in small quantities.

The outstanding news of the year from the chemical-technical viewpoint is the appearance on an experimental scale of two truly synthetic fibers—"Vinyarn" and "Fiber 66"—which undoubtedly foreshadow the synthesis of a number of special types of textile fibers directly from chemical raw materials, such as synthetic resin.

SPUN RAYON YARNS

Advances in blending, carding, and spinning

IN THE FEW YEARS that rayon has been used to any large extent in this country machine settings and speeds which give satisfactory results have been worked out, and no particular difficulties are encountered in making spun rayon yarns on either the cotton, worsted, or woolen system. The tendency to use blends has resulted in numerous short cuts in carding and spinning staple rayon on both the cotton and worsted systems and has stimulated the efforts of machinery builders to experiment with several new types of equipment. Eventually, these experiments may lead to the evolution of a hybrid of the present cotton and worsted systems or of a special system for rayon staple. Another possibility is the development of some radically new method for converting continuous filament into staple and spinning it into yarn.

Specialized Equipment

Thus far, however, only a very few types of specialized equipment have been brought out for use in the manufacture of spun rayon yarns. Among these are a rotary cutter with double-bladed knife which makes 500 cuts per min., uses as many as six ends, and cuts rayon waste to any desired staple length up to 8 in.; and an opener capable of handling all lengths of staple, at a production of 1,000 lb. per hr., which prepares fiber for either woolen or worsted carding. These, along with a staple-rayon card for the worsted system, which has a special feed-end and breast, a single cylinder 60 in. in diameter, and hardened-point metallic wire clothing, were brought out slightly more than a year ago. A more recent development is a continuous self-feed machine which will cut staple in lengths from 0.192 in. to 5.64 in., and by use of extra change gears, to 19.1 in.; will handle from 4 to 12 tops simultaneously; and will make 300 to 800 cuts per min. Another recently developed attachment for producing, from one roving, a yarn of three distinct numbers, as well as ordinary two-count Himalaya, flake, and slub yarns, is suitable for use in spinning staple.

A short time ago a system for spinning worsted and other long fibers, including rayon staple, in lengths of 4 to 6 in., on cotton machinery was brought out; this system necessitates comparatively minor changes in the drawing, roving, and spinning processes. Another system, first announced several years ago, produces spun rayon yarn from continuous filament sliver by breaking the fibers, drafting them, and spinning them into a thread; at the present time no attempt is being made to market this system.

While most of the staple consumed by the cotton textile industry has been 1½ in., there is a growing demand for lengths up to 2 in. However, it has not been found practicable generally to use staple of longer lengths, due to difficulties encountered at the card. A recent trend in the use of rayon staple by cotton mills is the

Carding rayon staple on cotton system

utilization of coarser fibers, such as 3-denier and 5½-denier, in both bright and dull luster. These are particularly suitable for blends. However, there is a limitation to the use of the coarser fibers, since it is not feasible to spin 3-denier staple much beyond 30/1, nor 5½-denier staple beyond 18/1, whereas yarns up to 120/1 can be spun from 1½-denier staple. Due to stiffness and lack of adhesive qualities of the coarser fibers, some mills have encountered difficulty in taking the web off of the card; therefore they have found it advisable to use an inexpensive supporting pan.

It has been found that uniform blends in various percentages can be obtained by mixing in the proportion of 50% staple on the picker room floor and blending down at the drawing frame. Equipping the cards with continous or vacuum strippers will insure more consistent carding and greater protection against removal of a higher percentage of one fiber in a blend than another. Long-draft roving frames, according to reports, produce a good, even roving and are an aid in the making of quality blended yarns.

Some cotton mills have found it feasible to eliminate the picking process, and supply staple fiber directly from the bale to the card by use of a Bramwell feed (such as is commonly used on woolen cards) attached to the machine. This results in a less matted condition of the fibers entering the card; hence, less fiber breakage. However, use of this attachment requires ample space at the back of the card to open the bales and condition the fiber, in addition to extra space required for the feed at the side of the card.

Considerable experimentation has been carried out in various mills to determine the best methods for making the novelty yarns in current demand, and procedures adapted to these yarns have been worked out.

Improved Blends

In woolen and worsted mills efforts during the last year have been concentrated largely on the development of improved blends of rayon staple and wool for use in dress fabrics and men's suitings. Practically no trouble is encountered in making these blends on standard woolen and worsted equipment. No standard method of preparation and blending has been adopted; but in the case of worsted blends the most common procedure is to blend the worsted and the rayon staple tops at the first finished gill box; in drawing, the draft is usually governed by the type of wool used in the blend; in spinning—whatever type of frame is employed—as a rule less twist is required than for all-wool yarns. Although fiber breakage in carding rayon staple on worsted cards is reported to be slightly less than with wool, attention is being given to this problem with a view to reducing the breakage still further.

CHARACTERISTICS OF VARIOUS MAKES OF RAYON STAPLE FIBER

(Available in United States, Sept. 1, 1938) (According to data supplied by principal distributors)

PRODUCER		Type	Deniers	Staple lengths	Special Characteristics
Domestic					
American Viscose Corp.	Fibro	Viscose	1½, 3, 5½, 10, 25	1, 1 1/16, 1 1/16, 2, 2½, 4, 5, 7	
E. I. du Pont de Nemours & Co., Inc.	Du Pont	Viscose	1½, 3, 5½, 10, 20	Any	
Industrial Rayon Corp.	.....	Viscose	1½, 3, 5½	1½ to 5½	
Tennessee Eastman Corp., A. M. Tenney Associates, Inc., Sales Agent	Teca	Acetate	3, 5, 8, 12, 16, 20	Any	Stabilized crimp
Imported					
Japan Cotton & Silk Trading Co., Inc. Agent of Japanese producers	.....	Viscose	1½, 3, 5½	1, 1½, 3, 4, 5, 6, 8	Curled and uncurled
Meyer & Marks Yarn Co., Inc., Agent of Snia Viscosa, Italy	Snia Spun Rayon Snia Amba Lanital	Viscose Viscose Casein	1½, 3, 4¼ 1½ 3, 5	Any 1½ Any	High tensile strength Similar to wool in chemical characteristics.
John J. Ryan & Sons, Inc., Agent of Cisa Viscosa, Italy	Cisalfa	Viscose with modified protein	4	1⅜, 1½, 2½, 4, 5	More wool-like than ordinary viscose staple
	Cisa	Viscose	1½, 3, 5½	1⅜, 1½, 4, 5	

THROWING DEVELOPMENTS

Led by work on plied and combination yarns

By H. I. JACKSON

PROGRESS in rayon throwing during the last year has been marked by the further divergence of rayon throwing from silk throwing. This was largely the result of improvements and developments in machinery and methods especially adapted to the throwing of rayons.

Probably the most important influence on rayon throwing has been the strong call for plied and combination yarns. By "plied yarns" is meant multiple yarns of the same type, such as two ends of 150/3/40 acetate. "Combination yarn" is the term generally used in referring to the combining of unlike threads. The most popular combination is that of an end of viscose crepe twisted with a normal acetate yarn.

Small, silk-type doubler-twisters were originally used for this work, but volume production and quality demands have caused the development of large-package machines to accomodate the much heavier yarns. Also, the cotton-type doubler-twister, with two lines of feed rolls is being adapted and used more and more in this branch of rayon throwing. So far, no doubler-twister combining the advantages of double, independently driven feed rolls and a stop off motion has been offered for this special work, but it is known that machinery manufacturers are developing such a machine, and it is probable it may be announced soon.

No less than two new soaking ingredients were introduced recently. One consists of a stable size that, it is stated, will remain relatively unaffected by continued heating or by age during storage. The other is a compound for producing deep pebble crepes.

An extractor with an automatic, hydraulic brake and a timing mechanism has been introduced by one manufacturer. Another manufacturer, along with an improved conveyor-type dryer, is now offering poles which enable rayon throwsters to have the advantages of aluminum poles without the usual smudge danger. This is done by an inexpensive transparent coating over the poles.

A manufacturer of winding equip-

Winding rayon

ment has contributed spindleless attachments for his winders, and a metal traverse rail. Also, for the first time, there is being offered a rayon skein winder with definite provisions for a wide range of speeds controllable by means of a change gear; the machine also has a convenient change gear for regulating the traverse wind. This winder employs a heart-shaped cam and has the traverse bars stabilized by a dead-end spring arrangement. A flywheel on the drive end also is new and permits slow starts, as well as tapered-off stops.

Twisting Equipment

In twisting equipment the last year has brought the development of a new traverse bar attachment which will disengage itself from the cam arm if the rail becomes jammed. This is used in conjunction with a positive-drive grooved cam. The manufacturer of this equipment has also announced a bobbin cover for use in up-twisting. A radical change was made recently in the twister of another manufacturer; its purpose was to premit traverse drive parts to stay in more constant alignment with each other. This end was accomplished by relocating stroke adjustments so they are below, rather than above, the cam. The spring at the head end has been dispensed with in favor of one joining the traverse rails at the opposite end, and the unit has been further simplified and strengthened. A third twister has, among other improvements, a new spindle swing bearing designed to circulate oil yet avoid oil pumping and discoloration.

A wide variety of spindles, generally larger and heavier, is available on all twisters. Virtually without exception, bearings on all machines are now oilless or ball or roller.

Although they cause much speculation as to their development, introduction, and use, "two for one" twisters, which insert two turns of twist in the yarn for each spindle revolution, still remain a relatively unknown factor in rayon throwing.

Doubler-twisters, as a whole, have been aided by such innovations as the under-feed-roll stop motion of two manufacturers and by the inverted feed roll of a third.

The bobbin-sizing device and unrolling stop-motion on the redraw machines of one producer have been further improved during the last year, and another company recently brought out lighter and less expensive variations of its cleaners for use on redraw machines. In general, however, development on machines of this type has been less than on any other phase of rayon throwing, due to the increasing amount of thrown rayon which is used directly from twister packages.

It is now generally recognized that controlled humidification is essential to quality-thrown rayon. Recently, improved business has enabled an increasing number of plants to make air-conditioning installations.

In addition to hardened wires as a substitute for porcelain, wires plated with hard metals, such as chromium, have lately been adapted to many uses. Wire swifts produced by no less than four different manufacturers are continuing to replace wooden swifts, as these are generally considered ill-adapted for winding rayon.

A new development has been the oilless twister ring, which utilizes a traveler of unusual design. Another new device is a ball- and roller-bearing idler for use on rayon throwing machines. These idlers are said to be particularly valuable in places of abnormal strain or vertical thrust. Oil drip is now practically a thing of the past on all newer machines, thanks to felt retainers, "oilless" and sealed bearings, and enclosed mechanisms.

Less tangible than machinery developments, but possibly fully as important, is the increased application in rayon throwing plants, of industrial engineering ideas similar to those outlined in several articles published in TEXTILE WORLD during the last year.

RAYON WEAVING

Interest centers on spun-rayon fabrics

By JOHN PICONE

DEVELOPMENTS during the last year in the weaving of rayons have largely been confined to yarn and fiber combinations, and to cloth constructions. However, among the relatively few new machinery items for use in warp preparation and weaving which have been brought out are some which should be mentioned. It is this writer's belief that among the most important of these are the new quilling-machine compensators which have been made available. These compensators make possible maintenance of tension that is almost perfectly even and uniform on every spindle. The device has not only made it possible to control tension closely, but permits an increase in spindle speeds, reduces breakage and waste, and permits an increase in operator-load without adding to actual burden of the worker.

Two recently developed rayon bobbin strippers are also interesting. Both make use of compressed air to start the stripping process; in one type, the unwinding is completed by a pair of brush-covered rolls; in the other, a revolving drum accomplishes the purpose. The machines are applicable to all types of rayon bobbins, including the flat type and paper tubes with metal or Bakelite bases.

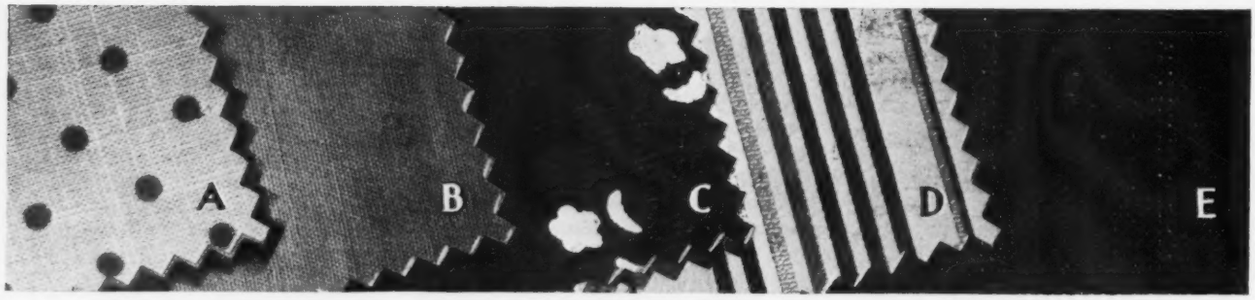
Another new machine is a warp lifter. Since rayon warps are presently being made as long as 6,000 yd., it is desirable to have installed a machine such as this, which lifts the warp out of the beamer, carries it to and places it in position at the sizing machine, removes the sized warp from the sizer and places it on a truck for transportation to the weave room.

Further, at least two new warp sizing machines have been brought out recently.

In one of these, closer control of stretch is featured. This is obtained by means of variable-speed drives, placed between the quetsch and first cylinder and between the last cylinder and draw rolls, and by means of a stretch control which indicates at all times the amount of stretch occurring in the warp being processed. This sizing machine uses seven 30-in. cylinders for drying.

In the second recently developed sizing machine nine cylinders are used, all of which are of stainless steel construction; also, the size boxes are stainless-steel jacketed.

Turning from new machines to new fabrics, we find there has been a



Group of rayon fabrics currently popular

great deal of activity during the last year. As described in another article in this section, combination yarns—ply yarns composed of two types of rayon—have come into the picture strongly. Similarly, blended yarns composed of spun rayon and one of the natural fibers have also been in the ascendency. Among the natural fibers used in this connection are included wool, rabbit hair, silk noil, and cotton; blends of two types of rayons have also been used. A third group of fabrics depends for its interest on yarn combinations—an end of filament rayon twisted with an end of spun rayon, spun rayon twisted with cotton or with silk, etc. Also included in this group should be novelty yarns, which are receiving much attention: ratiné, nub, flake, and bouclé yarns are among those in evidence. Likewise, many new fabrics contain all-spun-rayon yarns, used in conjunction with all-animal or all-vegetable yarns. The fact of the matter is that, whereas spun rayon originally was used primarily to imitate the natural fibers, it is now being recognized that spun rayon has in itself many desirable characteristics, and stress is being placed on development of these characteristics as well as on maintaining the desirable features of whatever natural fiber may be used in conjunction with the rayon.

The situation has still not crystallized sufficiently to make possible prediction of exactly what way the current spun-rayon vogue will go; it is certain, however, there will be seen many new and interesting combinations of rayon and other yarns and fibers during the forthcoming season.

However, in spite of the fact that increasing stress is being laid on spun rayons, it must not be assumed that filament rayons are far in the background. The contrary is true. A well-known triple-sheer continues in popularity; combination yarns already mentioned are featured in many new fabrics; an interesting handle is achieved in another cloth by combining a viscose rayon crepe yarn and an acetate in which selected filaments have been cut at intervals to give an effect similar to spun rayon without the necessity of all the preliminary processing which spun rayons require.

Samples chosen from the great variety of rayon fabrics currently popular are shown in the accompanying illustration. *A* is an all-spun-rayon number having 64 ends and 50 picks per in.; fabrics of this type weave easily and with little difficulty. *B* illustrates a fabric composed of spun acetate rayon and wool; this cloth is made with 80 ends and 48 picks per in. *C* shows a silk and cuprammonium rayon fabric; this has 90 ends and 84 picks per inch. *D* illustrates an all-filament-rayon fabric having 148 ends per in. of acetate ground warp, and 240 ends per in. of viscose yarn in the striped portion of the warp; 80 picks per in. of viscose yarn. *E* is a men's fabric composed of a blend of 60% worsted and 40% rayon staple; this fabric has 58 ends and 56 picks per in.

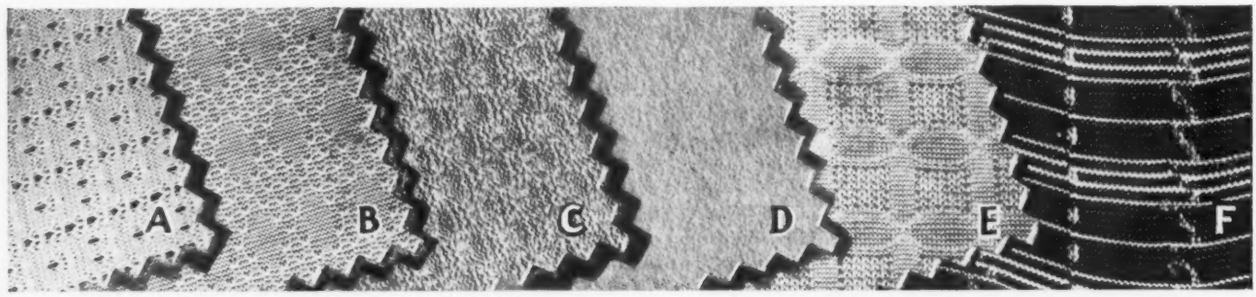
RAYON KNITTING

Many novel fabrics make appearance

By FREDERICK J. QUILITZSCH

IN THE knitting field the last twelve months has been notable particularly for the development of a wide variety of new and novel fabrics. Accompanying the development of new fabrics there has been considerable improvement in knitting machines and knitting-machine attachments.

Included among the many knitted fabrics created during the last year are three types made on a multiple-feed machine. These fabrics, which are suitable for underwear, pajamas, and gowns for both winter and summer wear, are illustrated at *A, B* and *C*. Quite a novel rayon fabric was introduced to the market this year by a leading underwear manufacturer.



(A) *Light-weight fabric with a lacy pattern.* (B) *Medium-weight fabric with a light tuck-stitch pattern.* (C) *Heavier-weight fabric with a heavy tuck-stitch pattern.* A, B *and* C *are types of fabric made on a multiple feed machine.* (D) *Ribbed fabric with napped back, known as Fluff-Knit.* (E) *Fabric made on improved latch-needle machine.* (F) *Half hose with pattern made by use of a chain striper attachment*

This fabric which is known as Fluff-Knit, as illustrated as *D*, has a flannel-like inside and a satiny-appearing ribbed outside. Although it is light in weight, it is soft and warm, which makes it well suited for gowns, pajamas, and panties for winter wear.

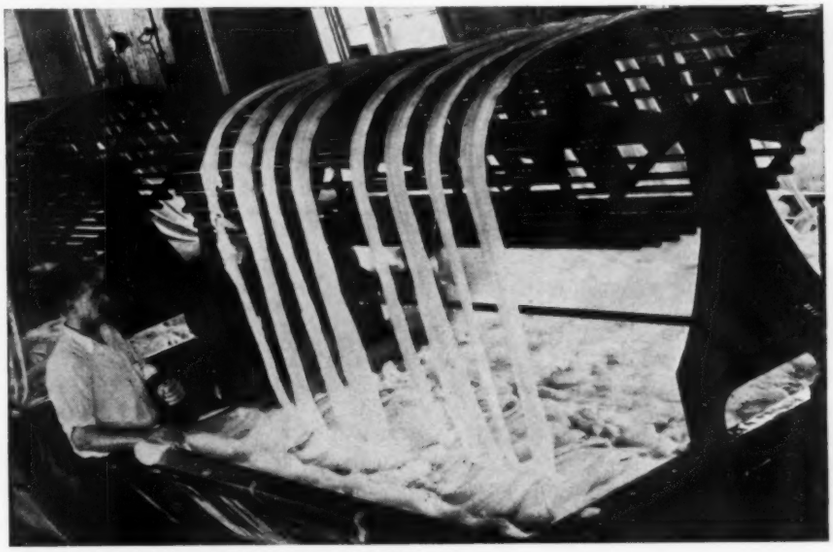
One of the patterns made on an improved latch-needle machine is shown at *E*. This machine is made with different numbers of feeds and in different sizes, ranging from 17 feeds for the 15-in. size to 26 feeds for the 23-in. size. This machine, which was first introduced about three years ago, is equipped with a sensitive instrument, employing an adaptation of the stroboscopic principles, to aid in keeping all knitting heads feeding uniformly. A compensator at each knitting head pulls the yarn from the cones and delivers only the desired quantities at the knitting point, regardless of the type stitch that the machine is running. Even though the machine is equipped with latch needles, the finished fabric does not show a typical latch-needle stitch.

A two-color striping attachment for spring-needle machines, brought out a little over a year ago has been used successfully for different types of rayon.

In an article by Leslie Miner in the February, 1938, issue of TEXTILE WORLD it is pointed out that, due to maladjustment of the machine, it is frequently difficult to get good, clear cloth when producing spring-needle circular-knit fabrics from staple-rayon blends. Mr. Miner stated that it is a good plan to put the machine in adjustment with cotton yarn before running pattern work of rayon or blended yarn. In the same article it is suggested that any manufacturer who makes a practice of running rayon yarn through spring-needle machines will save many pounds of yarn, that otherwise would be wasted, by installation of a steam system. If steam is not available, the yarn can be placed in a humidifying room for a few hours before using. Sometimes a small quantity of oil on the cones or a slight amount of tension on the yarn as it enters the needles will improve the knitting.

A recently developed tricot machine, which will take sectional warp beams up to 14 in. in diameter, makes possible the supplying of yarn on section beams by the rayon producer. Normal operating speed of this machine is 360 to 400 r.p.m., and a speed as high as 450 r.p.m. is possible without impairing the quality of the fabric. A short needle is used to withstand the high operating speed.

New patterns for men's rayon half hose consist chiefly of different striping effects, novelty clocks, and figured designs. Use of various shades and types of rayon help to make these patterns stand out to the best advantage. Illustration F shows a pattern made by use of a chain striper attachment. One hosiery company is using Cordura, an extra strong, viscose-type yarn in its fall line of half hose. This is believed to be the first time that this yarn has been used in hosiery.



Scouring rayon fabrics in reel-type machine

DYEING, PRINTING, FINISHING

Improved equipment and new chemicals advantageous

By PHILIP LE BRUN

BECAUSE of high wage rates and keen competition in the rayon finishing industry, dyers and printers have been forced to economize wherever possible. Introduction of improved equipment and various new dyes and chemicals has assisted the rayon finishers in this endeavor to reduce costs and, at the same time, has helped them to meet the growing demand for fast colors and better finishes.

One piece of equipment which has proved particularly advantageous is the latest type of boil-off machine. This machine occupies approximately the same floor space as the earlier models, but is built in seven tiers and is so constructed that it keeps the cloth at full width about ten times as long as did the original machines. Fabrics which could not be handled properly on the older models can be processed without difficulty on the latest types.

Embossing machines are gaining favor steadily for the pretreatment of rayon fabrics. A light embossing permits use of a fairly short, continuous machine on fabrics that are ordinarily scoured by the manual skein method. The decating machine has been accepted as a necessary piece of equipment for finishing many rayon fabrics. However, it is no longer regarded as a cure-all for breaks and other faults which always crop up in finishing rayon.

Aside from the usual yearly improvements in solubility and brightness of acetate dyes, is the development of a new developed black. This dye levels off and penetrates at a much greater speed than any acetate black has done hitherto. Due to its high affiinity for acetate fibers at a low temperature (160° F.), it is suitable for jig dyeing.

Demand for wash-fast colors has revived interest in dyes which couple readily with diazotized paranitraniline. The latter is sold as the stabilized diazo compound, which is simply dissolved in cold water and used as a final rinse on the dyed cloth. Resulting dyeings are very fast to water and washing. Several additions have been made to the formaldehyde-treated, dischargeable, direct dyes. These are sufficiently fast to water to be used for print ground shades.

Several compounds have been developed which increase the fastness to washing of direct colors when added

to the last rinse. Some of these products, however, slightly decrease the fastness to light.

The fading of blue acetate dyes in acid fumes has been troublesome in the past and has led to the development of blue dyes which can withstand the effect of acid reducing fumes, such as nitrous and sulphurous acids. Such dyes are rather expensive and require high temperatures in the dyebath to exhaust properly. It has been found also that the addition of certain chemicals to the last wet treatment has a beneficial effect. For example, addition of 5% sodium thiosulphate to the last wet bath is effective up to six months, according to many tests. Recently some proprietary compounds for preventing gas fading have been announced.

A new method for saponifying acetate yarns in viscose-acetate fabrics consists of adding 4½ to 11½ lb. of sodium metasilicate to the dyebath. Dyeing proceeds at 175 to 180° F. until the acetate yarns are dyed to the proper depth with direct dyes. The temperature is then dropped 20 to 25°, and about 1 lb. of common salt per 100 gal. is added to force the dye onto the viscose. This procedure produces surprisingly uniform dyeing.

Prices for printing are too low to permit the free use of vat colors for discharge purposes on rayons, and in many cases fast direct dyes which can withstand the action of hydrosulphite are being employed. Recently a new type of printing color has been introduced which consists essentially of insoluble pigments of fine particle size, uniformly dispersed in a vehicle in the form of a thin paste in which are included water-soluble binders. The dyes are applied on ordinary roller printing machines, but require no ageing, steaming or washing.

Finishing of spun rayon fabrics with resinous finishes has reached the point where the layman and many mill men cannot detect all-spun-rayon from fabrics containing as high as 50% of wool. Another type of permanent finish which is gaining favor is obtained by means of esterified cellulose derivatives, which are applied from water solutions but which become insoluble upon drying. These compounds are not difficult to apply, but are still too expensive to use on many of the fabrics where they would do the most good. However, by the selection of the proper resin or soluble cellulose the finisher can obtain practically any handle desired.

MERCHANDISERS ALERT

Expansion of spun rayon highlights active year

ON ONE SIDE an impressive array of new yarns and fabrics, with markets widening constantly and all signs pointing to broader trade and consumer acceptance; on the other side, a sharply receding demand which sent yarn consumption in some months to its lowest rate in years, carrying prices down to unprecedented levels. . . . Combine these aspects and you have a fairly accurate picture of rayon merchandising during the 1937–1938 year.

It's a hodge-podge story, in truth, with more than a touch of Irish paradox, but it adds up finally to a record of accomplishment which promises much for rayon in 1939. From the sales angle, the situation was discouraging enough during the last 12 months; however, that was compensated for to some degree by the work achieved in promoting current lines and pushing into new fields.

The so-called "thick and thin" fabrics have been remarkably successful for producers and weavers alike. Yarns used in these cloths now are made by three firms; it is estimated that 1,000,000 lb. of rayon yarn was consumed in this market alone during the last 12 months. Call for the "thick and thin" yarns and for the fabrics made therefrom rose so decisively in 1937–1938 despite the otherwise declining market that weavers were paying 15c to 30c premium for shipments. Other recent innovations likewise showed gains.

Most dramatic of all, perhaps, has been the continued expansion of markets for staple fiber. Day by day demand for spun staple has grown and this yarn now is going into an almost endless list of products. Its acceptance this year in draperies and shirtings has been notable; but it is also making progress in men's wool and cotton suitings, ties, suits, slacks, beach coats, boys' summer suits, etc. A year ago, spun rayon dress fabrics, selling at 25 to 30c, wholesale price, competed mainly with cottons; as the spun rayon fabrics grew more interesting, prices rose, and now spun rayon prices run as high as 60c and these fabrics are competing actively with filament rayons and to some degree with lightweight wool goods.

Challis type constructions for fall and slub types for spring now constitute the major outlet for spun rayon in the dress field, and both branches made progress during the year in achieving interesting textures. Competition between continuous filament rayon and spun rayon now is being studied carefully by the leading yarn firms; indications are that next year producers will make a special effort to widen the markets for filament rayons, especially viscose, to meet this problem.

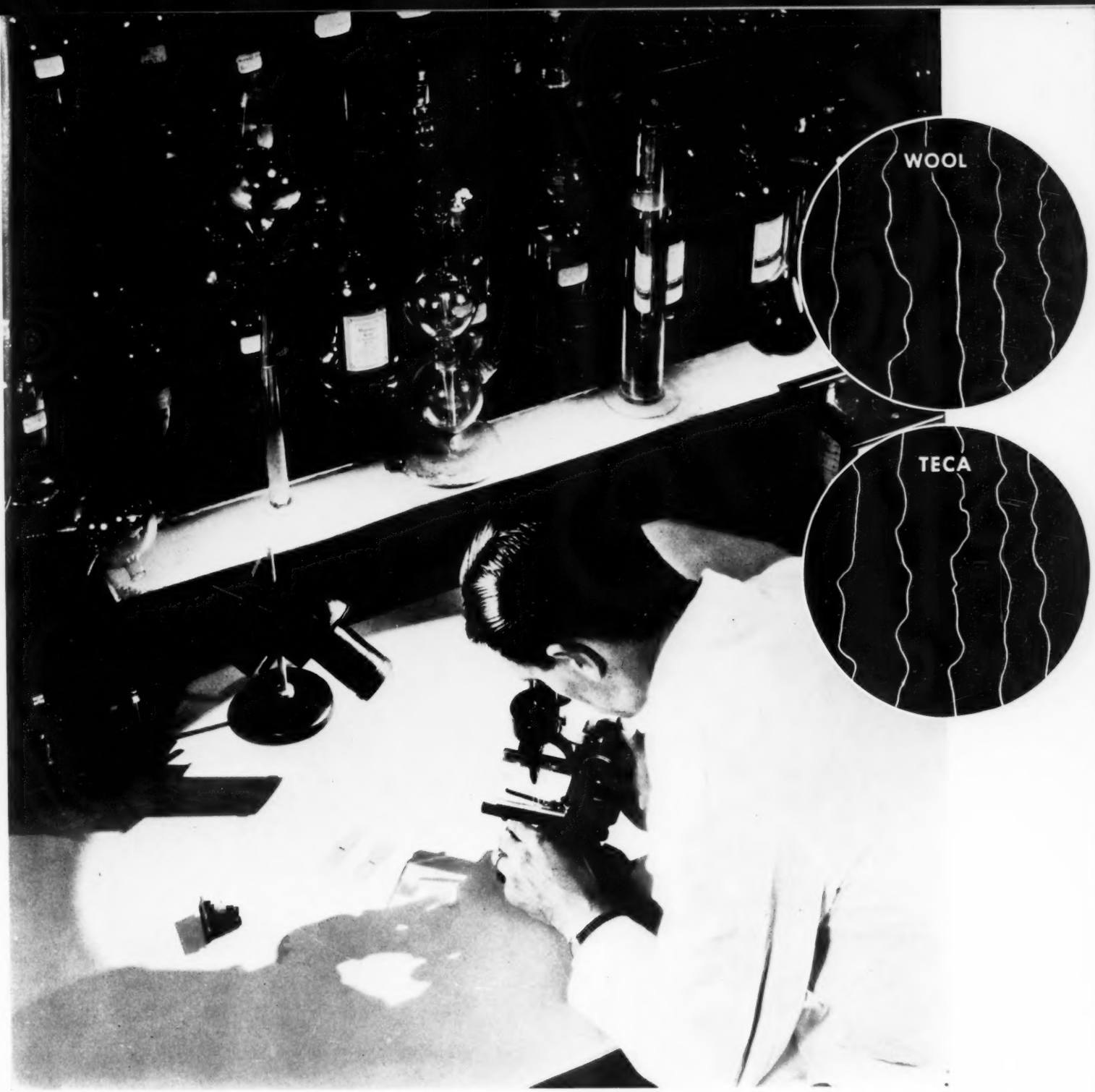
Increased strength was the chief feature of yarn development during the year, though the development work also helped toward more interesting textural effects. The added strength of course, served to promote rayon in fabrics where durability is a big factor. For instance, one of the new markets for Cordura yarn is men's half-hose, and its entry into the hosiery field is being watched closely by knitters and weavers alike for its value in indicating further possibilities of Cordura. The increased strength of rayon yarn also has won new friends for the fiber in shirtings, where the demand has risen notably.

The new "Fiber 66," a non-cellulose textile fiber, developed by E. I. du Pont de Nemours & Co., especially for full-fashioned hosiery, merits mention. Market inquiry indicated that hosiery manufacturers have few fiber prejudices and will take any fiber that meets the exacting demands of the silk hosiery consumers.

No less important than market expansion has been the increased trade and consumer acceptance of rayon. Here we have an impressive picture of progress. The labelling rules, now nearly a year old, have greatly strengthened rayon's prestige; today retailers seek more facts about rayon, and are more ready to pass these facts on to the consumer. A novel phase is that now rayon yarn companies have educated consumers to the point where frequently the customer knows more about rayon than the sales person!

Many merchandising problems lie on the doorstep of 1939. One is the question of overcoming the resistance as regards spun rayon's acceptance in men's worsteds. Women, due to long-time promotion in the silk fabric field, now accept rayon in their worsteds. Men, however, still need much education on the point. The big problem is to build acceptance of the rayon idea among (a) worsted goods manufacturers specializing in men's wear; and (b) the average American man, who still thinks primarily of wool in buying his suit or overcoat.

If, as indicated, wool prices should rise further this fall, the worsted trade is likely to be more receptive to synthetics. That may open the door to another major conquest for rayon—namely, the rich and profitable men's apparel field.



INSPECT TECA'S CRIMP

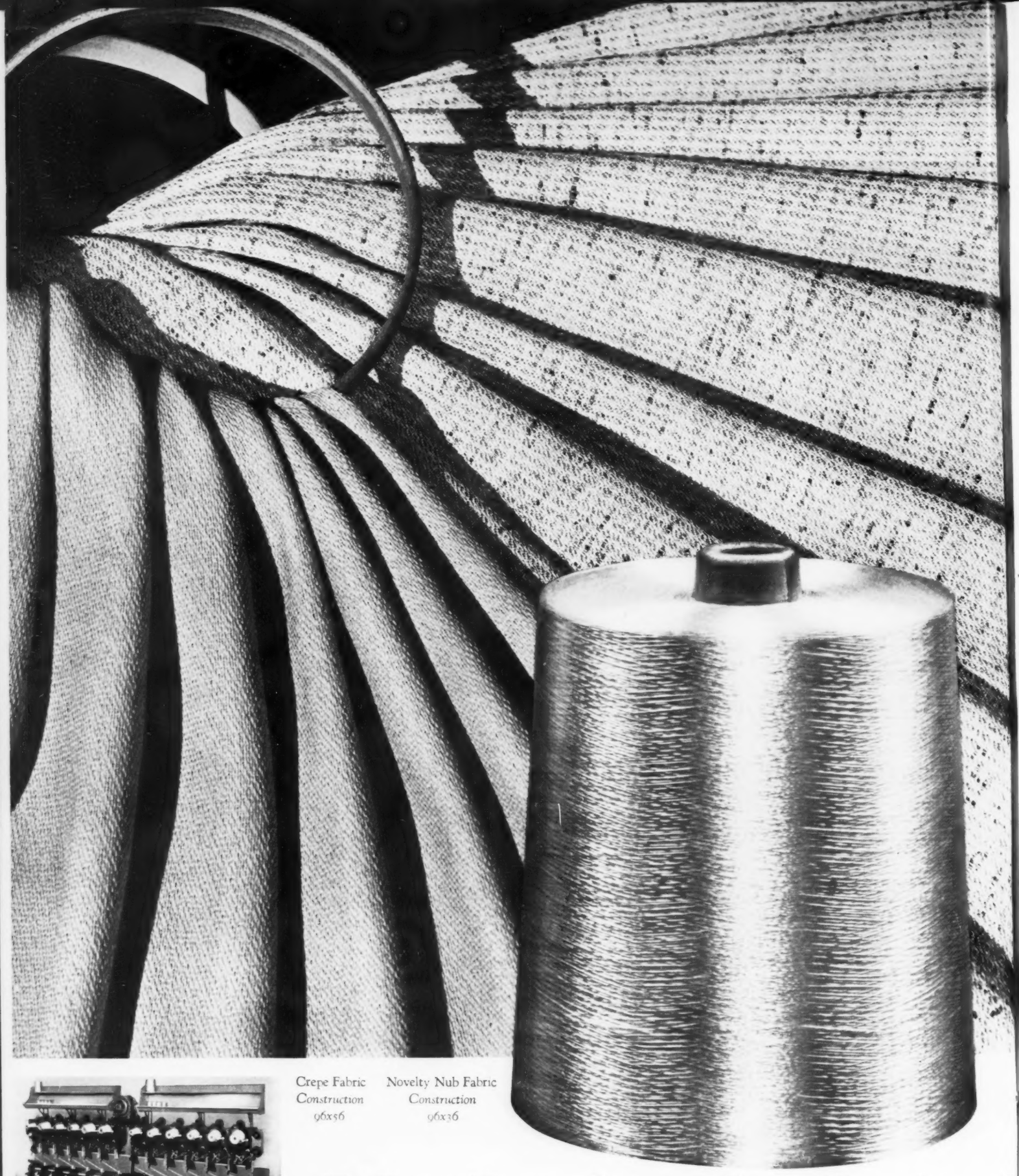
LOOK AT TECA, Eastman's new acetate rayon staple, through a microscope. Notice its crimp. Then compare it with wool —and you'll see that Teca's crimp is a wool-like crimp.

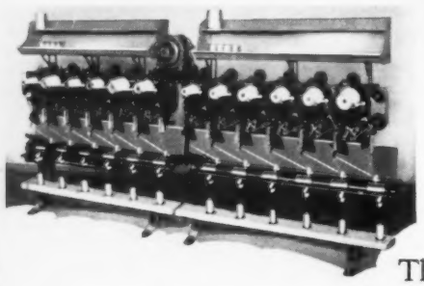
Test Teca still further and you'll find that this crimp is stabilized. Card and comb the fiber. Stretch it in spinning. As with wool, what crimp comes out tends to be regained in final processing.

Add to Teca's crimp the inherent springiness of the fiber itself. Together, they explain why Teca yarn and Teca fabrics are warm, resilient, and "wooly" in texture and appearance.

Teca comes in any length, in deniers from 3 to 20—and can be spun on any system. For more information, consult A. M. Tenney Associates, Inc., 10 East 40th Street, New York City. Sales representatives for the Tennessee Eastman Corporation, subsidiary of the Eastman Kodak Company.

Eastman Acetate Rayon





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Novelty Nub Fabric
Construction
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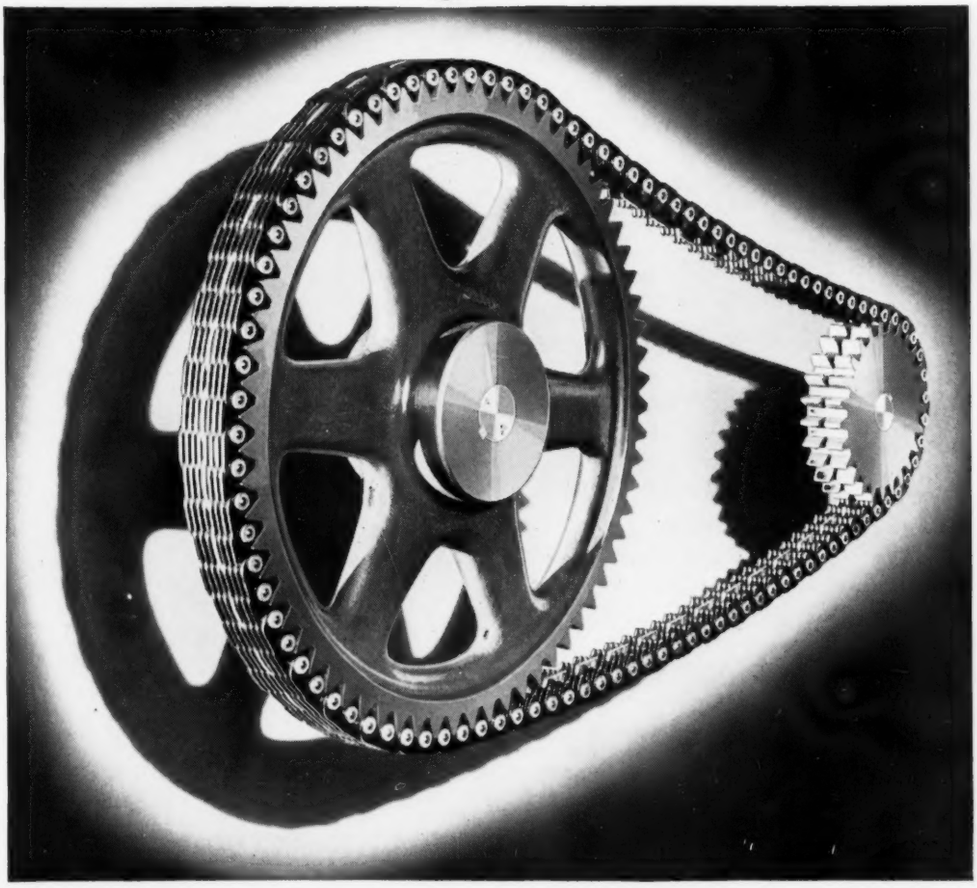

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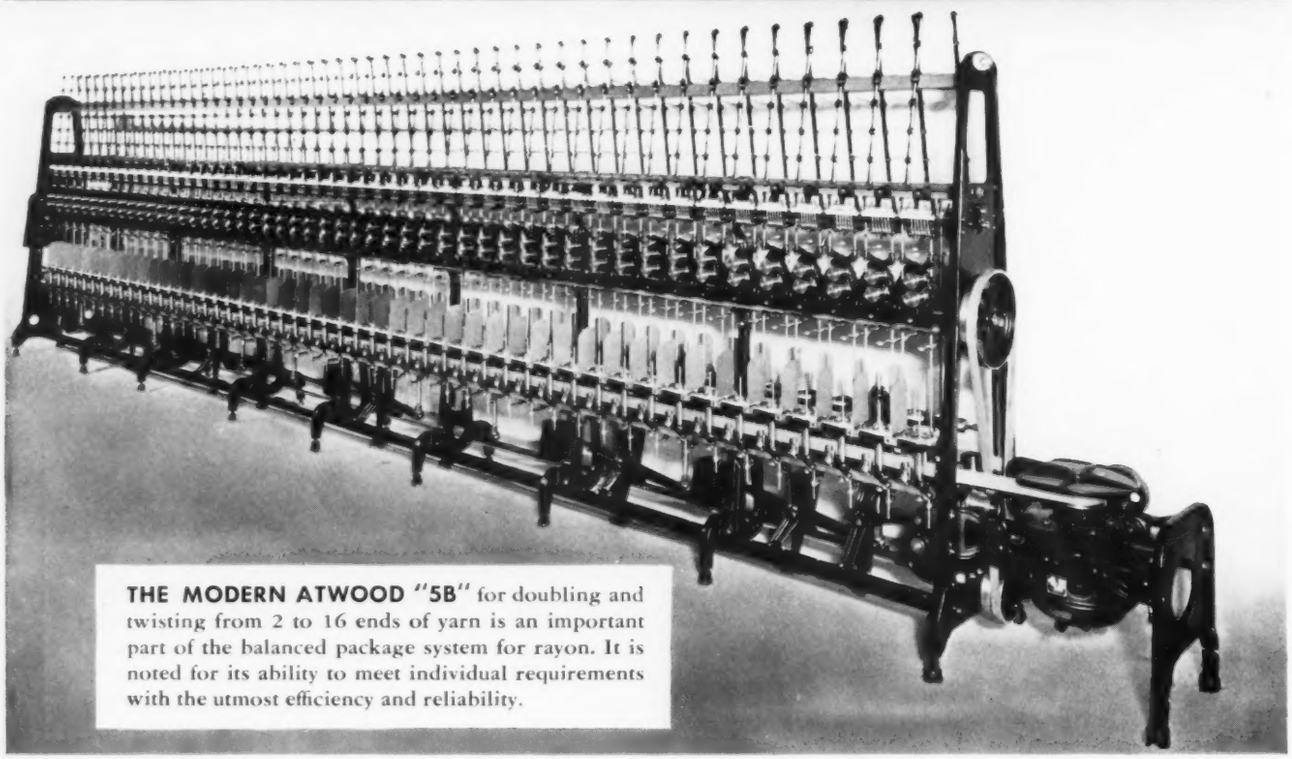

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THE OVERSEERS' CORNER

Who Should Do the Buying?

"FOR twenty years I've been using a certain type of supply," grumbled Bill to Pete as they met for a cold drink at the canteen, "and now I have to start using another kind. Know why? Well I'll tell you. The purchasing agent can get this new stuff 2c a lb. cheaper."

"What's wrong with the mill saving a little money?" asked Pete, fondling his ice-cold bottle of pop. "The new product runs all right, doesn't it?"

"I can make it run, but I don't like it. Means a lot more work putting it on the machines, and the operatives grumble about it. Besides, I miss old man Brown, the salesman, who used to drop in once in a while and take my order. He always had a new story and news of what the other mills were doing."

"Personally, I'm glad old man Brown and the other peddlers who used to waste so much of my time are kept out of the mill now," declared Pete. "Let the purchasing agent listen to his yarns. I've got a job to run which takes all of my time to keep on the straight track."

"But that's not all I object to. How does a purchasing agent know what is best suited for my work? Does he have to run it? Looks to me like the man who uses the stuff should be the one to buy it."

Pete reluctantly set down his empty bottle. "The heat's got you, Bill. There may be something in what you say, but you know that setting up this central purchasing department was the super's idea. It got to the place where half his time was devoted to interviewing salesmen. A few of them came in to see us, but they all saw him. He had to put a stop to it. Furthermore, competition is such today that every penny possible must be saved, and a lot of money can be saved by careful and comparative buying."

"I'm not criticizing the superintendent," concluded Bill, "but it still seems to me that he and the overseers should do the buying instead of some money juggler out in the front office."

Who should do the buying, the operating executive who uses the material or the purchasing agent who studies the market?

Letters From Readers

SO MANY letters were received commenting on the "Ambition vs. Complacency" discussion by Pete & Bill in the May issue that space limitation has prevented our printing all of them. However, the following group and others previously published give some idea of the interest in this topic. Letters devoted to other Pete & Bill discussions which have appeared from time to time will be printed in succeeding issues.

—EDITOR

Ambition vs. Complacency Comments Favor Pete

Editor, Overseers' Corner:

The ambitious man should be encouraged and assisted to forge ahead. Some foremen cannot see it that way, because perhaps they are a bit shaky in their own jobs and afraid the ambitious man may crowd them out of their positions. The ambitious man is eager, he wants chiefly to achieve something better, different; naturally the achievement will favorably affect business, or bring about beneficial changes in methods of work, etc. To discourage the ambitious man is both foolish and dangerous. Because so discouraged, carrying unspoken grievances around with him all day, he becomes a menace and a hindrance. We recognize as harmful inordinate ambition which desires to sweep everything from its path; but we are dealing now with the ambitious type which is wanted in every shop and factory. As Emerson says, "There is always room for a man of force, and he makes room for many."

The complacent man is blindly self-satisfied; if he sees the need of drastic changes he refrains from suggestions because he knows that these changes mean more work, extra efforts that might disturb the smooth serene routine of his untroubled day. Heaven preserve us from the complacent worker in these days of inventive genius and industrial upheaval. He is an eyesore to the earnest industrial worker.

We have need of virility in our industrial scheme of things; the intrepid man is the ambitious man, but we can well do without the complacent man whose work is as shallow as his empty head.

—G. McARDLE
Philadelphia, Pa.

Editor, Overseers' Corner:

As a regular reader of TEXTILE WORLD I get much information and food for thought from the arguments presented by "Pete and Bill." I think there is much more to their argument on "Ambition vs. Complacency" than most of us overseers realize. Of course, we all like the worker who does just the right thing at the right time. However, persons of that type are few and far between, and that is where our work comes in—to make "real people" out of what we have. Occasionally, we do encounter an over-ambitious fellow who needs toning down rather than prodding, but I find that they are much fewer in number than the ones who need their ambition stimulated. As overseers I think it is our duty to our workers to encourage all who have the ability and qualifications to learn a better job than the one they are on. When we neglect this duty I feel that we are not only keeping others from higher awards, but are hampering our own progress as well.

—W. D.
Honea Path, S. C.

Editor, Overseers' Corner:

How much ambition can a person have without being too aggressive and making himself obnoxious? As one fairly new in the profession, this

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for without regard to length. We will use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you — contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.

THE OVERSEERS' CORNER

question has been in the writer's mind constantly. In some instances it has been too dangerous to exhibit accrued knowledge because superiors definitely showed a jealous attitude toward one who apparently showed that he had more than enough brains to "come out of a rainstorm." On the other hand, the ambitious fellow feels that he is standing still unless he does learn new methods and operations. Where, then, is the happy medium?

The attitude shown by Pete is preferable. Ambitious men are the smarter and more worthwhile than the complacent. An industry is no more progressive than its members—or my logic is wrong. Then give the man a chance to learn other jobs and to keep himself in hand so that the boss will not say, "That ambitious young brat is so egotistical that he feels capable of taking my job!" Superiors who have this attitude are to be pitied along with the organization with which they are connected!

Bill isn't 100% wrong in his attitude. The burden does rest with the ambitious man; and he can learn much from the conservative, reserved, complacent man. Ambition which fosters ego does not beget permanent gains.

—V. E. Gill
Dayton, Ohio

Editor, Overseers' Corner:

Perhaps John Smith is hopeless as Pete says. In lots of cases the boss will want to fire him, and a lay-off for a week or so might cause him to try and learn that other job. Bill is not altogether right in his version either, as in many cases men who have tried to teach or train new workers have on their hands certain new persons who just won't learn after all the patience possible is exerted in their behalf. I remember a man whom I was trying to teach several small jobs included in the routine of a regular job. When each little task was completed he would look the entire plant over to find me and tell me he had completed that small task, and then would want me to show him the next one when he already knew the routine that was to be followed. Such as these tax the patience of even a Job. Then there comes those who are so ambitious that they become the chronic "belly-achers" and fault-finders extraordinary. With these around, too much nosiness is existent and I think that the firing rod should be used on them as well as on those who are too complacent or self-satisfied. This is another clock-pendulum item, and to stay in the middle of the road is a very good play.

—F. L. Byrd
Fort Mill, S. C.

Editor, Overseers' Corner:

Answering the question, "Are ambitious employees better for the mill than complacent employees?", I maintain that the former are—definitely. And here's why:

When an employee is ambitious, has a desire to get ahead, that employee puts forth his best efforts to reach the goal he has set for himself. He performs his duties punctually and to the best of his ability. He puts his whole heart into his work, and he doesn't try to see how little work he can do, but how much. Also, he makes sure that the product he turns out is just as near perfect as he can make it. He avoids making bad work always, realizing that before he can qualify for the better position he is striving for he must be able to run his present one better than anyone else in his department. Employers don't promote to higher, more responsible positions men who cannot or will not run their present job satisfactorily.

As to the methods an overseer should employ to incite ambition in his employees, probably none which would work in all cases exists. That which would work with one employee would not with others. In the writer's opinion, a plan in operation in a large mill in his community will give good results, everything considered. The plan includes "pep talks" in which the employees are told the advantages of making good work and are used to advance themselves to better, higher-paying jobs. Such messages also are typed and tacked up on bulletin boards in the plant. Rolls-of-honor for the workers consistently making good work for a given length of time are displayed. This plan has produced good results, so the company's superintendent informs. But as stated before, no one certain method would work in all cases and whether perfection in inspiring all the workers to get ahead could be achieved in a very large room in which many are employed is a question. But undoubtedly, good results could be obtained with the right type of overseer. The ambitious, determined-to-get-ahead employee is the man who is most valuable to the mill in which he works, and he's the fellow who wins promotion—always.

—Earl Farmer
Lincolnton, N. C.

Overseers Practical Helps

Correctly Weighting Warps

One often hears it said, "There shall not be any slack cloth on the breast beam when the lay beats up." There is more to this quotation than appears at first glance. To achieve a uniform tension throughout the warp and fulfill the above quoted requirements is a task commanding skilled attention.

The question is: How much weight to put on and where to put it? First, consider the fabric. For example, we will take a cloth having 18 picks and 19 ends per in.; 1 run woolen yarn, warp and filling; and a two up, two down twill weave. From these data we know such a fabric will need considerable weight. Now, in placing the weights, this being a 2/2 twill weave to the right, we put more weight on the left weight-arm than on the right. By so doing, we offset the difference in the pull of the warp, which will be in the direction of the twill.

We can determine the correct balance of weight by observing the cloth as it passes through each temple, which should be uniform and undisturbed. Correct warp weighting will result in better-quality fabrics and higher production.

Earl M. Jambura
Wisconsin

Tailored Knitted Suits

Seeing an attractive, close-fitting, seamless, hand-knitted dress on a young girl in a subway, the writer decided to have it duplicated on a machine, if possible. Here is how it was done. The knitter put a long latch needle, every other one, in a 16-in. cylinder striper, and arranged every other cam to hold or cast off the long latches from the pattern card. Then the dial needles were taken out as for a 2x2 stitch, the long latch to come between the two

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dial needles. A 20s worsted yarn was used on a 10-cut, knit tight. A piece of goods was made with a plain-knit waistline, about 10 in. long, which resembled the old-style women's union suits. This piece was cut out for the sleeves and neck, and the real headache began: how to get away from seams? After a week or so, a 2x2 ribbed collar, 3 in. wide, doubled, was set in. This collar began at the armhole on one side and ran across to the other side, allowing a deep neck in both front and back. The armhole was finally finished with a short sleeve a few inches long, knit on a regular sleever with cuff and welt. All the finishing was done with a flatlock stitch.

PAUL NILES
Pennsylvania

Cleaning Rings Before Turning

The following useful kink appeared in *The Traveler*, published by Victor Ring Traveler Co.:

"When it becomes advisable to clean and polish double-flange spinning rings to prepare them for turning, we strongly recommend that they be returned to the manufacturer, who maintains special equipment for this work. He not only can do the job most efficiently but will remove and discard any rings discovered to be unsuited for further use.

"It is not always possible, however, to return the rings, because of the lack of time or for any of several other reasons. In that case, we offer the following suggestions for cleaning and polishing, which have been followed in several mills and have usually shown satisfactory results.

"The rings are removed from the rail and strung on a wire to protect the hands of the workman. They are then immersed in boiling lye-water for about 10 min.—the time depending on the condition of the rings. The lye-water may be heated in an ordinary washtub, or similar receptacle, with the use of an open steam pipe.

"The rings are then removed and rinsed in gasoline to prevent further rusting from the action of the lye water, and to remove any remaining grease. They are then ready for polishing, which is done on a revolving buffer. The polishing compound recommended is a mixture of cylinder oil and powdered pumice, and the rings should be dipped in this compound at frequent intervals during the operation.

"A suitable buffer may be made by wrapping an emery-wheel stud with cloth. If the speed of such an arrangement is too high, and cannot be reduced, it is better to use a lathe. Simply wrap a short piece of broom handle or similar wood stock with cloth and grip it in the faceplate of the lathe. From the range of revolving speeds obtainable on a lathe, the workman can select the one best suited to efficient polishing. Some mills have mounted revolving heads on wooden stands, and set them up in their roll shop for this polishing operation.

"There will be no confusion as to which flange should be up when replacing the rings, if you take the rings to the grinder and nick the flange with the traveler on before starting to clean them.

"No more rings should be cleaned at one time than can be polished during the same work day, since the removal of the grease film by the lye water and gasoline leaves them fully exposed to the attack of rust due to moisture or other corrosive elements in the atmosphere of the workroom."

Measure Crooked Stockings Before Adjusting Machine

Crooked stockings are a problem in any mill, more so when high-twist yarn is being run in the main leg with a tram-twist yarn in the welt and sub-welt. This writer is convinced it is a fallacy to run the welt out for 5 or 6 in. and use it for a base as to crookedness of a stocking. A change in the welt cone will often prove the silk is not knitting evenly, and any adjustment on the machine to overcome silk faults will eventually lead to serious trouble.

Recently, a knitter complained he had one head running exceptionally loose on one side. The fixer investigated and observed the machine itself was in perfect alignment; in fact, there was no more room for any adjustment whatever. There were five heads on the machine in the same condition, only not quite as bad. Taking a knitter's pick-up, he inserted the point into each side of the stocking in question at the end of the sub-welt, about three needles in from the selvage. While the knitter then held the pick-up, the fixer grasped each heel and with just enough pull so as not to stretch either side of the stocking he brought the two high splicings together. The side that was running loose in the welt proved to be about ½-in. short in the main leg.

Now, if an adjustment had been made in the welt, this would have made the same side still shorter in the main leg, causing the seamer no end of trouble. Measured at each side of the picot, the stocking was the same length on both sides, both splicings coming together perfectly. Rectifying the looseness in the welt would have aggravated the opposite condition in the main silk, so there was but one thing to do—leave well enough alone. It is therefore advisable always to measure the sides of the main leg before proceeding with any adjustment on the machine, even where the yarn may be slightly unbalanced in twist and have a tendency to run tighter on one side on all sections. Where this fault exists, several stockings must be measured to determine accurately whether the stocking in question is really running short or long on one side. After all, hosiery must come off the machine and seam without forcing the operator to stretch one side to make the splicings match.

K. R. BARKER
Tennessee

Questions and Answers

Redyeing Resin-Treated Velvets

Technical Editor:

Is it possible to redye resin-treated velvet? (8517)

The resins used for creaseproofing or crushproofing velvets tend to resist the majority of dyes. However, there are a selected few colors which will dye the rayon in spite of the resin. To redye the velvet it is best to remove the resin either partially or completely. This is best done by treating for 20 min. at 180 to 190° F. with a ½% solution of hydrochloric acid. This equals about 1 gal. of commercial muriatic acid per each 65 gal. of water. We are inclosing two samples. One was treated as described above. The other was not treated. Both were then dyed together in one bath using a mixture of rayon and silk dyes. It will be noted that the treated piece is dyed a full shade and has lost its crease resistance, whereas the un-

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treated piece is barely stained but still retains the crease resistance. It is recommended to add a small amount of some wetting-out agent to the acid bath, as the resin also tends to make the velvet somewhat resistant to wetting. The wetting agent speeds up the process and makes it more uniform.

Split Warps and Sheers

Technical Editor:

I shall appreciate it if you will send me any information concerning the following questions: What is meant by the term "split warp"? On what type of looms can split-warp 2x3 flat crepe, 250x60, 50/2-2/3-2 be woven? (8437)

The term "split warp" is used when, instead of having a warp made uniformly of two-ply 20/22 or three-ply 20/22, it is made with either one end of one-ply and one end of two-ply, or one end of two-ply and one end of three-ply. For instance, a split-warp fabric can be made on almost any loom that is in good condition and properly equipped. For example, a regular 52-in. 2x1 C. & K. loom will give good results as to quality and production, but practically any loom that is at least 45 in. in reed space can be used. The loom-fixer is the main cog in the wheel, and success depends largely on the range of his experience.

Defects in Full-Fashioned Hosiery

Technical Editor:

You will detect rings and washboards in the inclosed raw full-fashioned hosiery. Exhibits No. 1 and No. 2 are knitted with a boot yarn:

2x1 3/15 turns right } 45 turns left
1x1 3/15 no twist }

The raw stock was sold to us as a 92% silk. Five bales of this particular chop were used.

Exhibit No. 3 was knitted from the same chop, but from skeins taken from the last five bales and on different machines. The boot yarn in this hose is a 3-thread, 25 turn yarn. Numerous twist tests have been made on both the above yarns and satisfactory results have been obtained. Throwing machinery throughout the system was checked as to uniformity of spindle speeds and tensions, and found correct.

We will greatly appreciate hearing from you as to the possible cause or causes of the rings and washboard effects in the two so differently thrown yarns from the same chop of raw silk. (8570)

It is our opinion that the unsatisfactory conditions in the three samples of hosiery shown are not such as to permit responsibility for the trouble to be placed specifically on any one cause. Rather, we believe the conditions shown require the investigation and cooperation of the three parties involved—the knitter, the throwster, and the raw silk dealer.

Referring first to the rings and shadows, we note some evidence of uneven silk. The fact that a lot of silk satisfactorily tested to 92% does not in any sense of the word guarantee that any one bale or any five bales of the 10-bale lot would uniformly run 92% evenness. It is possible for fine ends to pass through in the reeling, but when extremely fine, the ends ought to break down in the re-reeling, and the operator should pull back the broken end to a point of satisfactory evenness. We do not consider an exhibit of one or two patterns of stockings, showing unevenness of this kind, to be an indication of a bad lot of silk; however, a preponderance of such conditions would certainly indicate bad silk and just reason for complaint.

The pros and cons of washboard fabric have been widely discussed since the advent of three-carrier attachments. Assertions have been made that washboard knitting can be largely eliminated through proper treatment of the silk, special tensions, and other devices on the knitting machine, etc. However, many experienced knitters believe that at least 75% of all washboard trouble develops from uneven silk and is unpreventable, regardless of the treatment of the silk or attachments on the knitting machine. This does not mean that the knitter should ever cease trying to overcome washboard to the fullest extent possible, by the proper soaking of the silk, proper tension on winders, proper tension on knitting machine, proper moistening condition of the knitting machine, and proper adjustment of needles and sinkers.

Sleazy knitting is a problem which is the dual responsibility of the throwster and the knitter; and close cooperation between the two should reduce sleazy knitting to a minimum. We feel that to do this the throwster, by experimentation, will have to produce thrown silk best suited to local conditions of the mill in question, and the mill must keep local conditions best suited to the soaking he gets. In knitting rooms where there is no air conditioning and wide variation in humidity is experienced, the control of sleazy knitting is very difficult.

Referring specifically to Exhibit No. 2, we note shadowed lines having the appearance of light silk or loose knitting. In our opinion this condition is due to black grease marks. On Exhibit No. 3 we note a number of black grease specks or smudges which may be traced to the throwsters, but have more of the earmarks of the knitter's responsibility. The indications are that the silk cones and the fabric itself have been handled by greasy, dirty hands.

As stated at the outset, our judgment is that a cooperative follow-up by the throwster and knitter on the complaints involved would clear up most of this trouble, and put both of them in position to present a stronger case to the raw silk dealer.

Sheers and Triple-Sheers

Technical Editor:

What is the difference between sheer and triple-sheer cloths? (8437)

Sheers are mostly of light construction, made either on a 40 or 45 reed, with the pick wheel ranging from 64 to 80 picks to the inch. Triple sheers are made mostly with a pick wheel either 96 or 100 picks to the inch and a 60-dent reed with the warp constructed of two-thread 20/22, 60 to 65 turns. The filling is of the same material as the warp.

Protecting Water and Steam Pipes

Technical Editor:

We have had considerable trouble and expense, from time to time, replacing water and steam pipes in our dyehouse because of excessive rust.

We would appreciate any advice you can give us as to the best sort of paint to use in further protecting such pipe. If there is some kind of coating or covering other than paint which might serve this same purpose, we would be glad to know about this also. (8567)

Protecting steam and water piping in dyehouses, and particularly in the basements of such departments, has always been and always will be a troublesome problem. One large mill uses an asphaltum base black paint, on pipes in the basement, with fairly good results. It has the advantage that it can be applied to surfaces that are moist or damp; that is, the pipe surfaces do not have to be dry, and water does not seem to affect it much. Of course, as with any paint, all loose rust or scale should first be removed; otherwise it will peel off in time and carry the paint with it.

On pipe and pipe covering above

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the floor aluminum paint gives good results. This paint is made up on the job by mixing aluminum powder with a high-grade varnish as a vehicle. The result is a coating of finely divided metal aluminum which does not stain any fabrics that may come in contact with it, and which seems to withstand well the action of water and steam. Special varnishes are available for this purpose.

Winding and Warping Equipment

We should like to have your estimate as to the number of Universal No. 90 winders that will be necessary to wind all of the filling for 7,000 yd. weekly production of a cotton-warp, worsted-filled fabric like the sample enclosed, and also your opinion as to the type and quantity of warp-dressing equipment, such as dressing frames, spoolers, etc. (8460)

On the basis of an 80-hr. week, the following list of equipment should serve as a guide:

Two high-speed spoolers.

Two magazine creels.

The magazine creel, which is designed for cones, tubes, or cheeses only, will produce at the rate of between 300 and 400 yd. per minute, not allowing for stopped time.

Dressing units as follows:

Two all-metal creels, either plain or adjustable.

Two hack stands or dry dresser frames.

Two pinless reels.

Two three-speed beamers.

The pinless-type reel eliminates section marks. It can also be equipped with three speeds, which enable the operator to increase or decrease the speed according to the condition of the yarn being processed.

Three No. 90 machines of 20 spindles each would be sufficient to produce your filling requirements.

Knitted Rayon Streaky

Technical Editor:

Inclosed you will find a piece of rayon loop cloth which has been dyed, napped, and then sheared.

This cloth is made on a 22-cut, latch-needle Brinton loop machine, using 150-den., 40-filament Chardonize (Tubize) rayon on the loop or nap side, and 200-den., 75-filament, Dulesco (Viscose) rayon in the back.

You will notice that the color is shaded or streaked very badly. We would like to know the reason for this. We wonder if this shaded condition is caused by the two different types of rayon in the cloth, or because the oil in the rayon was not washed out completely, or if there is another reason for it. We would also like to know what we can do to remedy this condition. (8551)

It seems that the streaks which are on the piece of cloth are caused from the use of two different types of rayon in the construction of the cloth. The various types of rayon all have a different affinity when bleaching and dyeing. After an ether extraction a small amount of mineral oil was found in this piece of cloth; when the fabric is being dyed, this has a tendency to resist dyestuffs.

Many of the dyeing problems which arise are caused by the dyeing of goods which are not properly scoured. Mineral oil should, of necessity, be fully removed from the goods.

Finishing Knitted Overcoating

Technical Editor:

I am finishing knitted overcoat fabrics of the fleece type. We are now going into finishing of fabrics with a broadcloth finish, and also cotton backs. On the cotton backs the finish required is a full, bloomy, lustrous, laying velour, with the lay of the pile about 75°. I am rather shorthanded on equipment; have a double-acting Davis & Furber napper, and have requested purchase of a tease gig with which I can achieve the straightening out of all fibers, as well as the luster.

I have succeeded in getting a full pile on the D. & F. napper, but when goods come out of the dryer, they are flat and, after raising them with a velour brush on the shear, the finish becomes choppy looking.

Will you advise me as to the regular procedure for this type of finish? (8548)

After the goods are finished off the gig, they should be dried. Then, raise the face dry on your double-acting napper. Brush thoroughly, shear to sample length, and lay fibers straight on the shear. Tenter to width.

Uneven Dyeing on Lace

Technical Editor:

We are inclosing a sample of our Lastex lace which is made of Lastex, mercerized cotton, and silk. For the last few weeks we have experienced considerable trouble due to streakiness such as you will notice in this sample. Anything which you can do to enlighten us as to the cause of this unevenness in color will be greatly appreciated. (8565)

Both the feel and appearance of this fabric indicate that the gum has not been removed from the silk. As the gum is not distributed uniformly on the silk, it will naturally cause much unevenness in the dyeing. Material of this sort should be handled exactly in the same way as silk hosiery containing cotton. First the goods must be treated at 200° F. for ½ to ¾ hr. in a strong soap bath to remove the gum from the silk; then they should be well rinsed; third, they should be dyed in a fresh bath with a dye which will cover both cotton and silk, or part of the soap bath may be run off and refilled with water and the dyeing done in this diluted soap bath, using suitable dyes which will dye both fibers under such conditions. If the procedure is carried out in this way, the goods will be much more brilliant, softer, and evenly colored.

Shuttle-Box Adjustment

Technical Editor:

In Question & Answer No. 8457, published in TEXTILE WORLD'S November, 1937, issue, your inquirer states he is having trouble in leveling shuttle-boxes on 4x1 C. & K. looms. This letter almost gives the reason for and answer to his troubles, when he states that the boxes "are off, a little higher or lower." This in itself suggests that one of the following is the cause: (1) boxes binding in grooved slides, (2) box rod bent and/or binding in rod guide, (3) excessive play in box-motion leverage. Any of these faults would cause this trouble, by interfering with the normal motion of raising and lowering of boxes when the loom is in operation.

Some time ago I had the same trouble and here is the way I went about correcting it: (1) Disconnected the box cell from rod, levers, etc., until I had the cell box by itself; then put the box into grooved slides and adjusted them so that the box would drop of its own weight and could be raised with one finger, yet had no end play. (2) Attached the box rod and adjusted the rod guide so that the box could slide up and down just as freely as when tested alone.

After making these adjustments, attaching box-motion levers, and leveling, I found that my troubles were over. Therefore I suggest that this man check up on his box slides, for end play and binding; his box rods, for pinching in guide, crooked, etc.; his box-motion leverage, for excessive play. It is needless to say that if his troubles are caused by excessive play in the box-motion leverage, the remedy for them is to replace the worn parts.

ALCIDE E. CHOQUETTE
(R. I.)

LOOMFIXERS' MANUAL

COTTON SECTION—*Chapter IV—(Continued)*

By IVAR MOBERG

Left-off Motions

NUMEROUS semi-automatic let-off motions have been developed from time to time. However, few of these have shown any great advantages over friction let-offs and most, therefore, have been discarded. For this reason, these motions will not be discussed here.

Fig. C32 shows the Searing-Grasser let-off. The operation of this let-off motion is fully automatic and no adjustment of the weight is necessary once the proper tension has been obtained. The action of the motion depends upon whiproll depression but since this depression is against weight resistance, rather than spring resistance, the force to depress the whiproll when the warp is getting smaller during weaving is very little, if any, increased. Hence the entire warp can be woven out without altering the weights. Tension of the warp is regulated by a weight supported from the let-off lever, which is attached to the whiproll-supporting shaft.

Fig. C33 is a diagram of an older type of Bartlett let-off used on Draper L model looms. Recent improvements have made this motion very effective, no adjustments being necessary after the proper tension of the warp for any particular fabric has once been obtained.

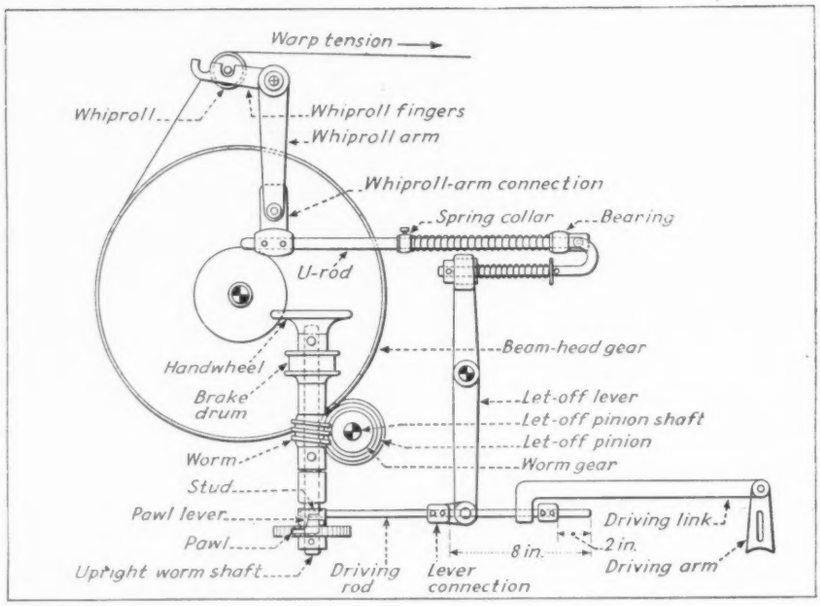


Fig. C33. Diagrammatic sketch of Bartlett let-off motion for Draper L model looms

However, since many of the Bartlett let-off motions still in use are older types, it may be well to touch upon the subject of its setting and adjustment. The action of this motion also depends on depression of the whiproll as the beam becomes smaller. Since the depression of the whiproll is against spring tension, the resistance of the springs is increased as the whiproll is depressed by the tension of the warp. Hence, to maintain proper tension it is necessary to reduce the spring tension from time to time, as the beam gets smaller. The easing or, as it is more often called, vibrating motion of the whiproll is here connected with the let-off which causes it to vary with the amount of let-off. The easing motion of the whiproll is therefore very slight on a full beam but gradually increases, as the whiproll is further depressed, to compensate for the smaller beam diameter.

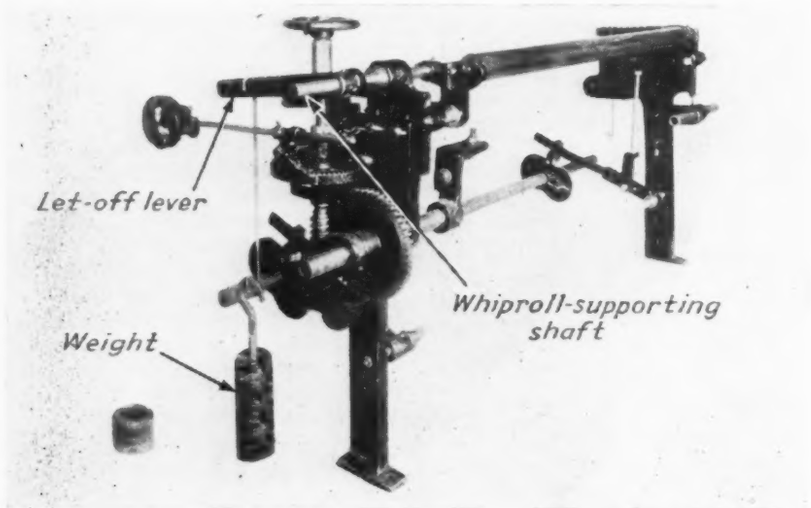


Fig. C32. Searing-Grasser fully automatic let-off motion

Referring again to Fig. C33, the following steps should be followed in setting and adjusting the older Bartlett let-off motions:

(1) With an empty beam in the loom, adjust the position of the let-off-pinion shaft so that the let-off pinion meshes closely with the beam-head gear but without binding at any point. Turn the beam completely around to make sure the pinion is not binding, either in the teeth or against the beam head. On wide looms the let-off-pinion shaft extends across the entire width of the loom with a pinion at each end. In such cases there is usually a differential motion at the driving end; this also must be checked for free running.

(2) Bolt the stand holding the upright worm-shaft, and adjust its position so the worm will mesh as deeply

into the worm gear as is possible without binding; then tighten the bolts. Turn the handwheel around several times to make certain the worm does not bind.

(3) Bolt the driving arm to the parellel motion stand or, if the motion is driven from the lay sword, clamp on lay sword about 6 in. from the center of the rocker shaft. Slip the driving link on the stud of the driving arm. Insert the driving rod through the lever connection and the driving link, slipping the other end of the driving rod over the stud on the pawl lever.

(4) Adjust the bearing and the whiproll-arm connection so that the U-rod lies level and in the center of the slot in the let-off lever. The whiproll arm should be so adjusted that it will have a vertical position when the beam is nearly empty and the greatest amount of let-off takes place.

(5) Adjust height of the whiproll fingers so these will be level when the maximum depression of the whiproll takes place as the beam is almost empty. This adjustment must be made under proper tension during the weaving of the last yards of warp from the beam.

(6) Adjust the brake on the brake drum so that it will just keep the upright shaft from over-running when moved by the pawl during the let-off.

(7) Move the spring collar to compress the spring and give proper tension to the warp. This adjustment must be made after the warp is in the loom, and the loom has been run to determine the amount of tension required.

On looms equipped with springs at both ends, endeavor to have the spring tension equalized. As the beam gets smaller in weaving, the spring tension must be reduced from time to time. This is necessary since the increased tension of the warp further depresses the whiproll, so as to permit the pawl to let-off more teeth. As this additional depression gradually takes place, the spring will become more compressed, and if the compression is not reduced, the tension of the cloth will increase.

WOOL SECTION—*Chapter V—(Continued)*

By BENJAMIN F. HAYES

Why Shuttles Fly Out

THE FIRST installment of this chapter discussed some causes for shuttles flying out, and outlined remedies appropriate to single-shuttle looms. The present installment concerns similar operating difficulties as they may appear in looms using four or more shuttles.

When one shuttle is flying out in looms such as this, first place the shuttle back in its box, then find the loose pick. If the box moves as the loose pick is found, it will also move when the loom is started in operation; this indicates that one of two things is at the bottom of the trouble; either the box movement is not correct, or the shuttle was "trapped" by the picker.

Shuttle Adjuster

As regards the first of these possibilities, the loom's outside box guide contains a vertical, beveled shuttle adjuster . If the shuttle goes too far into the box, the tip of the shuttle may be beyond the edges of the adjuster. This will prevent free movement of the boxes; a similar result will be noted if the shuttle binder is so tight as to prevent the bevel guides from placing the shuttle properly in the box.

The second cause mentioned above is usually encountered on looms which have drop-box pickers. Check straps not infrequently stretch, and such a condition will cause the picker to "trap" the shuttle when the boxes are moving.

Another frequently noted cause of flying shuttles is that the boxes are not finishing their movement quickly enough, and, as a result, the picking stick pushes against the shuttle before the boxes have attained the proper position. The boxes should have completed their movement before the crank reaches top center, and if they do not, their timing should be checked and necessary adjustments made. Usually, boxes are timed by the protector—with the shuttle box empty, the moving box must have moved about $\frac{1}{4}$ in., up or down as the case may be, when the protector strikes the frog.

It is advisable to time shuttle boxes both when they are rising and when they are dropping. For instance, it may be found that, on some particular box or boxes, the shuttle always leaves the box on the rising movement. Such boxes should, naturally, be timed on the rise. The best way to eliminate possibility of trouble from this cause is to time all boxes in both directions.

Timing Box Movement

However, if on checking it is found that timing of the beginning of the box movement is correct, yet the boxes are still late in completing their movement, we must look elsewhere for the cause of the trouble. In such instances, the setting of the eccentric movement should be checked. It may be that the boxes are simply moving too slowly, due to inaccurate setting of the eccentric. Proper adjustment of the movement will of course clear up trouble from this cause.

Shuttles may also be caused to fly out by boxes which are higher or lower than the race plate of the loom. Occasionally, due to addition to a loom of larger shuttles and shuttle boxes, or to some other cause, it seems impossible to make every box come down to the level of the race plate. To eliminate trouble from such a cause, place a strip of leather of the required thickness between the bottom of the lay and the top of the lay end. In many cases, this will raise the lay sufficiently so that all boxes can be made to come level with it.

Broken Ends

Broken ends, in looms not equipped with warp stop-motions, may also be guilty of causing shuttles to fly out. The difficulty here lies in the fact that several broken ends mat together and form a lump which throws the shuttle off its course.

When shuttle boxes are set to jump from No. 1 to No. 3, No. 2 to No. 4, or *vice versa*, difficulty with flying shuttles is frequently encountered if the loom is operating at 130 picks per minute, or more. Setting the eccentric so that the boxes will start their movement fast and finish slowly (see illustration D, Fig. W9, TEXTILE WORLD, June, 1938) will help to overcome trouble due to this cause.

(In the next installment of this chapter, Mr. Hayes will discuss causes of shuttles flying out which, while infrequently met, often are quite difficult to eliminate.—*Editor*)

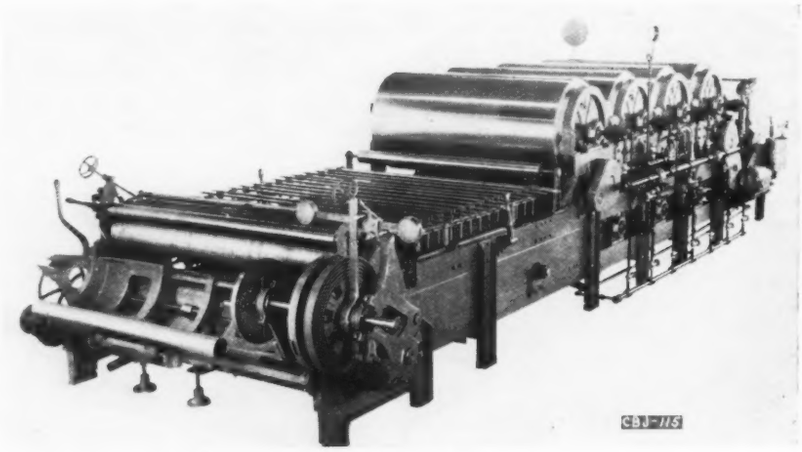
NEW MACHINERY AND PROCESSES

Sizing Machine

Closer control of stretch and more drying surface than on former seven-cylinder models are the outstanding features of a new rayon sizing machine developed by Charles B. Johnson, Paterson, N. J. Each of the seven stainless-steel cylinders of this sizer is 30 in. in diameter; this is said to give the same drying area as on a nine-cylinder machine.

Gradations of stretch control are both positive and infinite; a variable-speed drive between the quetsch and the first drying cylinder permits the operator to increase or decrease stretch very smoothly. Another variable-speed drive, between the last cylinder and the draw rolls, gives equally smooth stretch control at this point. Both of these drives are equipped with micrometer reading dials, which can be instantly adjusted to the correct percentage of stretch for each warp processed. There is also a stretch control, which indicates the exact amount of stretch occurring in the warp as it passes through the machine.

In addition to the new features already mentioned, structural changes were made to enable the machines to carry the larger cylinders, and a heavier take-up drive was provided for running at higher speeds.

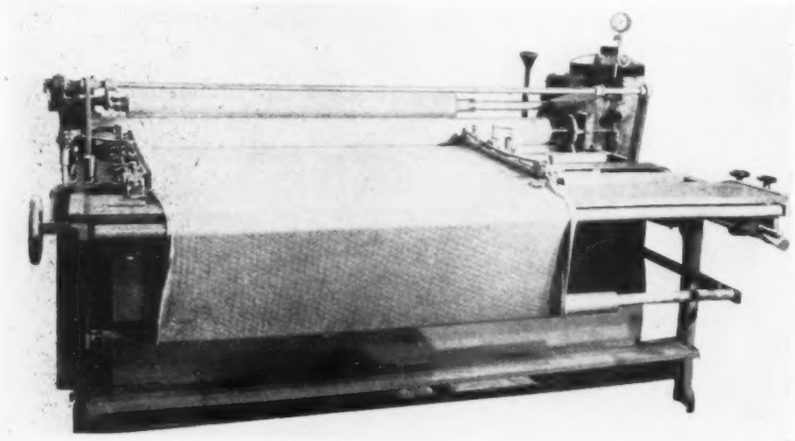


Sizing Machine (Johnson)

Steamer for Knit Goods

An improved steamer and tenter for knit goods is being offered by Harlem Knitting Machine Co., 1952 Park Ave., New York. The device consists essentially of a chain-type tenter, steam box, and means for rolling-up fabrics after treatment.

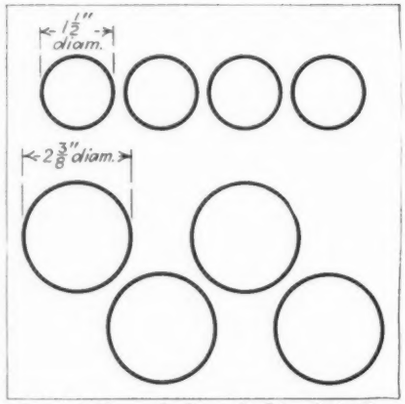
A feature of the machine is its versatility; it is stated that flat, circular, raschel, links, and all other types of knitted fabrics can be handled. Other features cited include the machine's ease and speed of operation, the fact that it gives fabrics a soft and lofty finish, adds body to sleazy fabrics, improves the handle of fabrics in which inferior yarns have been used, insures straight stripes, and eliminates curly edges.



Knit Goods Steamer (Harlem Knitting Machine)

Staggered-Spindle Mule

For the purpose of making possible production of woolen spinning mules with increased effective gage but without any increase in machine length, Davis & Furber Machine Co., North Andover, Mass., has recently developed a staggered arrangement of spindles.



Staggered- and Straight-Line-Spindle Comparison (Davis & Furber)

As will be seen on reference to the accompanying diagram, the staggered spindle arrangement makes possible production of $2\frac{3}{8}$-in. diameter bobbins where $1\frac{1}{2}$-in. was formerly the limit, an increase of approximately 60% over the largest diameter possible with single-line spindle arrangement on mules of the same gage. Similarly, a bobbin $2\frac{5}{8}$-in. diameter can be spun on a $2\frac{1}{4}$-in. gage staggered-spindle mule.

Advantages cited include, in addition to the obvious production of larger packages, savings in floor space, and the fact that the staggered arrangement can be applied to narrow-gage mules already installed, thus converting them to large-package operation.

Spinning Tape

An impregnated spinning tape of thin construction and light weight brought out some time ago by Roger

W. Cutler, 141 Milk St., Boston, has now been subjected to extensive mill tests. This tape, which is made of extra-long staple combed cotton and woven with a special gage weave, is only 0.031 in. thick, whereas the average thickness of ordinary spinning tape is 0.050 in. It is asserted that the greater flexibility due to the new construction reduces slippage and effects a considerable power saving, running up to 24% according to mill tests. Furthermore, it is stated that there is no marked difference between the life of the new tape and that of ordinary tapes. The special impregnating process is said to render the tape resistant to atmospheric changes which might otherwise cause the tape to expand or contract.

Pillowcase Doffer

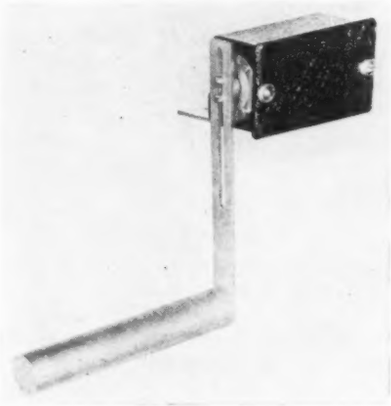
For doffing and stacking pillowcases and other similar textile items, such as towels, diapers, handkerchiefs, etc., Automatic Air Doffer Co., Lawrence, Mass., is offering a machine said to require only one-quarter the number of operators usually employed for this work.

The device is placed at the delivery end of the conveyor aprons which carry the fabric from the ironing rolls. It consists of a structural steel framework supporting an inclined metal plate, down which the pillowcases slide. Mounted at the top of the inclined plate and just underneath the last conveyor roll is a perforated air pipe. As a pillowcase slides down the inclined plate it breaks an electric circuit at a predetermined point; this in turn releases a flow of air which blows the pillowcase over a rack.

It is stated the equipment can be operated at the delivery end of any type of machine using conveyor aprons.

Size-Level Control

To facilitate better control of size level in high-speed rayon slashers, in which both the speed at which the yarn absorbs the size and the relatively small size of the size box tend to make such control difficult, American Schaeffer & Budenberg Instrument Div. of Manning, Maxwell & Moore, Inc., Bridgeport, Conn., has developed a new size-level controller.



Size-level Control (American Schaeffer & Budenberg)

The unit, shown in the accompanying illustration, has a small, sensitive float which actuates a snap-acting switch; this in turn makes or breaks the current to a quick-acting solenoid valve. The switch can be set to operate on a change of level of as little as $\frac{1}{4}$ in., or up to several inches, as desired.

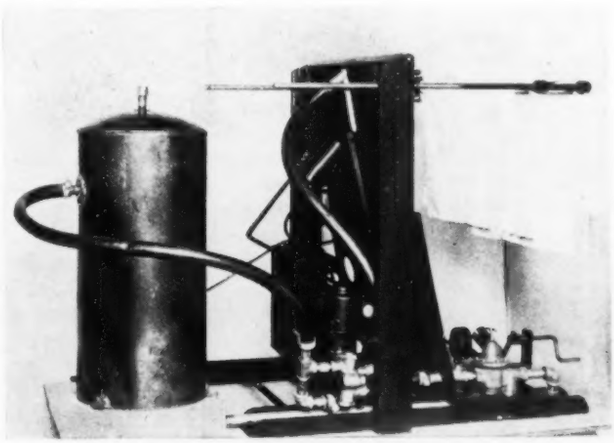
An important feature of the controller is that it operates without any time-lag, thus maintaining proper size level regardless of the frequency or speed with which the slasher is started and stopped.

Roving-Frame Cone

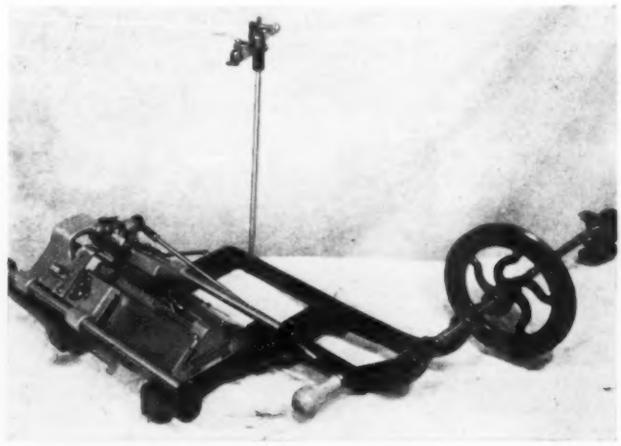
Whitin Machine Works, Whitinsville, Mass., has produced, under the supervision of Fay H. Martin, a new bottom roving-frame cone with a practical contour. It is stated that use of this cone will allow controlled tension for every layer on the bobbin. Results of tests made by the manufacturer show that the breaking strength of the roving made with the new cones is about 7% higher and the variation in size slightly less than that of roving made with ordinary cones. The new cones can be installed in existing Woonsocket and Whitin-Woonsocket roving frames at a moderate cost.

Glove Fingering Machine

A new high-speed back-drive fingering machine has been announced by Lamb Knitting Machine Corp., Chicopee Falls, Mass. The drive crank, which is set back out of the way to protect the operator when the machine is power-operated, is easily accessible for hand-operation. A 6-in. V-pulley is mounted on an 18-in. crank shaft supported by a self-lubricating roller bearing which is adjustable. The aluminum carriage, which slides back and forth on two ground, polished rods can be tipped back out of action by removing one of the rods. There is a brush latch opener at the back of the carriage and a steel latch opener at the front. Needle plates, which have 3 in. of needle space and can be obtained with from four to eight needles per in., are finely machined and hardened to give long service. Cam locks are specially constructed for high-speed knitting. Two levers at the end of the machine are used for dropping jacks, in the needle bed, out of working position. The machine has the



Pillowcase Doffer (Automatic Air Doffer)



Fingering Machine (Lamb Knitting Machine)

Lamb disk-tension yarn take-up and a graduated slide on the carriage for adjusting the stitch cams. Complete weight of the machine is 32 lb. and recommended operating speed is 250 r.p.m.

Useful Accessories for Textile Mill Use

Variable Speed-Transmission. Graham Transmissions, Inc., Milwaukee, Wis., has recently announced variable-speed equipment in new models, which, by means of an ingenious tractional device, automatically keep the drive pressure in proportion to both load and speed, maintaining full torque all the way to zero speeds, and transmitting full power over a range of 4:1, while making possible speeds in infinite steps from any desired maximum all the way to zero and reverse.

Lever Valves. For use with steam, air, oil, hot or cold water, and most gases, a new series of valves, known as Series 42 balanced lever valves has recently been announced by A. W. Cash Co., Decatur, Ill. The valves incorporate a number of features insuring free movement, accurate stem alignment, tight seating, longer packing life, and minimum of friction. Several types are available, and the valves can be furnished in any size and of any material.

Unit Heater. A propeller-fan type heater of new design has been announced by Herman Nelson Corp., Moline, Ill. The unit, designed for steam or hot water heating of industrial and commercial buildings, combines numerous features of design and construction said to produce a new high in space-heating efficiency and quiet operation.

Fire-Smothering Equipment. Recently brought out by Pyrene Mfg. Co., Newark, N. J., is a larger capacity Phomaire play pipe, Model PP24, that makes 500 to 750 gal. of fire-smothering foam per min. and produces 350 gal. of foam from only 1 gal. of Phomaide solution. The pipe can be operated by one person.

Cycle Controller. A single-cam cycle controller which provides for control of as many as four separate operations is now being built by Bristol Co., Waterbury, Conn. The cams are cut to meet a wide variety of requirements, and additional flexibility is provided through use of adjustable segments and special operating mechanisms which make it possible to obtain two different speeds of rotation before the cam completes a cycle.

Electrical Equipment. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has recently announced dust- and water-tight, heavy-duty, push-button stations for service where protection from fumes, dust, and moisture is desired. Another recent new development of Westinghouse is an indoor circuit breaker for both central station and industrial plant use, in ratings up to 15,000 volts; these Type U De-ion air circuit breakers operate entirely without oil or liquid, function in normal atmosphere, and are not dependent upon maintenance of any medium such as air pressure or vacuum.

Sanitary Equipment. Sperzel Modern Seat Co., 4927 Oakland Ave., Minneapolis, Minn., has designed a new sanitary toilet seat, made of stainless steel and Bakelite and featuring smooth, rounded, and completely accessible surfaces, with no corners or crevices in which germs can lodge.

Tachometer. An indicating and recording tachometer is offered by Amthor Testing Instrument Co., Inc., 10 Leo Place, Brooklyn, N. Y.; the instrument records machine speeds or production rates, speed changes, starting and stopping time, productive and non-productive periods, and idle time; an indicating dial permits the operator to keep check on machine speed even though the tachometer is mounted some distance from the machine.

Fluorescent Lighting Fixture. A fluorescent tube fixture for color examination and general inspection work is being marketed by Barkon-Frink Tube Lighting Corp., Long Island City, N. Y.; light from the fixtures is said to closely approach average daylight in quality and to be an excellent source of light for color grading.

Adjustable Sheave and Centrifugal Pump. Two divisions of Allis-Chalmers Mfg. Co., Milwaukee, Wis., have recently announced new products. The Texrope Division has developed an adjustable sheave with a range of pitch diameter varying from 2 to 3 in., and from 3 to 4 in.; the change is accomplished merely by removing the adjustable plate, reversing, and again placing on the hub. The Centrifugal Pump Division has supplemented its line of single-stage SS unit type of pumps by adding a two-stage pump good for heads up to 525 ft. at 3550 r.p.m.

NEW CHEMICAL PRODUCTS

Synthetic Detergent and Wetting Agent

An entirely new type of synthetic detergent, penetrant, and wetting agent has recently been developed by Rohm & Haas Co., Inc., 222 West Washington Square, Philadelphia. Chemically this product, known as Triton 720, represents a new departure in synthetic detergents. Laboratory tests made by the manufacturer indicate that the properties of Triton 720 are such that the compound will prove of value in numerous textile applications. These tests are now being supplemented by practical mill trials, which are said to be giving further evidence of the excellent detergent and wetting-out properties of the new material. Triton 720 is not regarded as a substitute for soap; but, rather, as a "special-purpose" chemical which will be most advantageous in processes where the older types of detergents cannot be used at all or where, because of adverse conditions, they do not function at their highest efficiency.

Triton 720 is being made available in the form of a paste, which is freely soluble in either hot or cold water in concentrations up to 10%. Normally the paste is neutral in reaction, but can be adjusted to any desired pH. It is stable in hot or cold acid, alkaline, and mild oxidizing solutions. The compound is described as being "lime-proof," giving no precipitate or curds when used with hard water; this is due to the fact it forms soluble calcium and magnesium salts, which act as builders and which actually increase the detergent power of solutions in water up to about 10 grains of hardness.

It is stated that the new product gives rapid wetting out of textiles at all concentrations at which it is likely to be used; for example, the Draves' test gives a wetting-out speed of 40 to 50 sec. at 0.2% concentrations; about 20 sec. at 0.3%; and about 13 sec. at 0.4%.

The penetrating action of this chemical is also said to be very good, although in some applications, other wetting agents, such as Triton W-30, may be more effective.

The detergency of Triton 720 is said to be excellent, particularly as regards removal of solid soil, oil, and grease, which are difficult to remove with the usual detergents. Other properties of interest to textile men are its good rinsibility; low adsorption, which means that it is not exhausted from the bath; moderate fiber-swelling power, which accounts

for the thoroughness with which it wets-out yarns or fabrics; and its high dispersing power.

For most applications the concentrations recommended range from 0.1% to 0.5% paste; for a few special purposes—removal of stains by spotting, for example—higher concentrations can be used. As a detergent Triton 720 can be employed alone, in combination with soap, in combination with soda ash or another alkaline builder, or in combination with both soap and a builder. Ordinarily, use of a builder is advisable, as this increases the detergent power. Fabrics washed with the new product are said to be left with a soft, pleasant, dry hand. Since the compound does not hydrolize or decompose, textiles treated with it do not have a tendency upon ageing or storing to develop odors or discolorations. Tests made by the manufacturers indicate that the new product has no deleterious effect on the fibers, fabrics showing an increase in tensile strength after the first washing and no loss after 50 washes.

Two of the applications which are particularly recommended as a result of the mill trials which have been carried out to date are in soaping-off textiles after dyeing or printing, and in scouring raw wool. Used for soaping-off, either alone or with soap, Triton 720 is said to result in brighter, clearer shades than are obtained by the usual methods. Again, it is stated that the following procedure yields excellent results in scouring raw wool: first bowl—0.1% Triton 720, 0.5% soda ash, 130 to 135° F.; second bowl—0.1% Triton 720, 0.25% soda ash, 120 to 125° F.; third bowl—0.05% Triton 720, 0.25% soda ash; 120° F.

Some other applications for which Triton 720 is being recommended or suggested are wetting-out of gray goods, assistant in peroxide bleaching, scouring rayon yarns and fabrics, wetting-out of cotton goods which are to be pre-shrunk, scouring of lime-pulled wool, silk degumming, preparation of raw stock for dyeing, as a dispersing and penetrating agent in dyeing, penetrating agent in warp sizing; and in acid and alkaline fulling. In making these suggestions, Röhm & Haas Co. points out the fact that the compound is so new there has not yet been an opportunity to determine all of the uses for which it is suited in the textile industry, and that in all probability there are other special applications where it will be advantageous.

Earl Arthurs who now represents Solvay Sales Corp. at Atlanta, Ga.

NEWS OF SUPPLIERS

Emmons Loom Harness Co., Lawrence, Mass., has opened a new plant in Charlotte, N. C. The Emmons Charlotte Division will be manned by the personnel formerly employed by the reed department of the Charlotte Mfg. Co. The latter company will continue to make card clothing and will expand its business in that line. The new division of Emmons will stock the company's steel heddles, cotton harness and other loom equipment, including the new tubular aluminum heddle frames. George Bahan will continue as district representative, while George Field will be plant manager.

Fox Laboratories, 336 Canal St., New York, is now marketing a complete line of latex adhesives for the textile industry sold under the trade name "Fox Cementex."

General Electric Co., Bridgeport, Conn., has appointed A. E. Newman as manager of the company's wiring materials sales section. Mr. Newman was formerly manager of the conduit and wire and cable sales section.

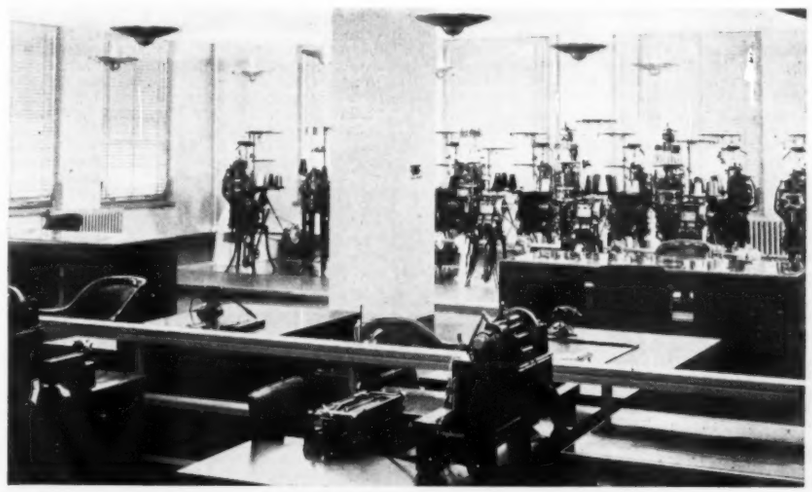
Alexander Bros., Philadelphia, leather belting and textile leathers, have added a dynamometer to their mechanical laboratory at Williamsport, Pa. This motor-generator set tests belts for horsepower capacity, slip, creep, etc.

Solvay Sales Corp., New York, has recently transferred Earl Arthurs from its Charlotte, N. C., office to Atlanta, Ga., where he will be located at 908 Juniper Street. Mr. Arthurs came to the Charlotte office from the New York office three years ago. He will now cover the Georgia territory, working under the direction of Harral Pierce, branch manager, at Charlotte.

Charles J. Basch, Jr., formerly president and general manager of the Basch & Greenfield Co., has retired from that company and opened offices at 171 Madison Ave., New York, where he will deal in and manufacture wools, rayons, garnetts and rags.

Textile Testing & Research Laboratories, New York, has established the National Retail Testing Bureau under the directorship of M. L. Chandross. Harry Levine is managing director of the parent laboratory.

Haas-Miller Corp., Philadelphia, chemicals, oils and greases, have appointed Fred W. Dieck as sales representative to contact rayon and silk throwsters. Mr. Dieck was formerly



VIEW in New York office of Scott & Williams, Inc., removed last month to new location at 40 Worth St., as reported in July issue of TEXTILE WORLD. The company has set up display rooms with special facilities for demonstration of its knitting machinery as well as an exhibit of hosiery, underwear and fabrics produced on S. & W. equipment. The company's New York office had previously been located at 366 Broadway for 24 years; its plant is at Laconia, N. H.

associated with the Susquehanna Silk Mills, Sunbury, Pa., having served with that company for 25 years.

Celluloid Corp., New York, has appointed Plastic Industries, Ltd., 637 Craig St., West, Montreal, as its agents for Canada.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has reorganized its air conditioning department with headquarters at the company's East Springfield, Mass., plant. P. Y. Danley has been named as the manager. S. F. Meyers has been appointed assistant manager, located in Chicago, Ill.

Connecticut Blower Co., Hartford, Conn., has opened a New York office at 155 East 44th St., with J. G. Stalb as district manager, to cover New York City, Southern New York State, Long Island, New Jersey and Delaware. The company also announces five additional sales engineers in their respective States as follows: Carl E. Swift, Holland, Mich.; John P. Gilboy, Scranton, Pa.; Martin E. Marsalis, Fort Worth, Texas; Charles E. Kreipke, Evansville, Ind.; Chester J. Scanlan, Bloomington, Ill.

Link-Belt Co. has appointed William W. Bond as Western sales manager of the positive drive division, with headquarters at the Dodge plant in Indianapolis, to succeed G. Howard Burkholder, deceased. Ralph S. Dyson, manager of stock silent and roller chain drives through distributors, will also head up roller chain sales to machinery manufacturers.

Trico Fuse Mfg. Co., Milwaukee, Wis., has appointed H. L. Huxster, Upper Darby, Pa., as district sales representative in southeastern Pennsylvania and southern New Jersey for the complete line of Trico products.

Hatch Textile Research, Inc., New York, announces that the current month marks the 30th anniversary of Herbert Harriman Hatch as textile consultant in the New York textile market. He started his career in September 1908 under the guidance of his father who was at the head of the New York Mill & Commission Merchants' Agency, a public textile adjusting firm founded in 1880 on Canal Street.

DeVilbiss Co., Toledo, Ohio, will hold three sessions of its training school for industrial painters, master painters, and all others interested in learning the technique of spray-painting, starting Oct. 3 and 31, and Nov. 28, respectively. The full course extends for one week.

Austin Co., engineers and builders, Cleveland, Ohio, is establishing its own construction organization in England, under the managing directorship of Allan S. Austin. A complete engineering staff is already being organized under the direction of Albert S. Low, vice president and chief engineer of the company.

Samuel C. Rogers & Co., Buffalo, N. Y., makers of saw and knife grinding machinery, is now headed by E. G. Mansfield as president, who formerly was vice-president and treasurer and was associated with the company for 25 years. He succeeds Oliver Cabana, Jr., who died several months ago.

Armstrong Cork Co., Lancaster, Pa., has promoted F. L. Suter to first vice-president, succeeding Hugh M. Clark who died in July. Keith Powlison succeeds Mr. Suter as treasurer.

The Illuminating Engineering Society's 32d annual convention at Minneapolis, Minn., heard a paper on Aug. 31, presented by James A. Meacham, consulting engineer, of the Sherwin Williams Co., Cleveland, Ohio, on the subject "Light Reflection from Painted Surfaces." He pointed out that increase in use of indirect lighting required increasing attention to getting the most reflection value with least glare from white interior surfaces.

Johnson Engineering & Mfg. Co., Wilkes-Barre, Pa., was granted U. S. Patent No. 2127999 on Aug. 23 by assignment from John E. Johnson, covering self-stacking boards for bobbins, cones, tubes, etc., which were described in the March, 1937, issue of TEXTILE WORLD.

Farrel-Birmingham Co., Inc. has transferred Edward S. Coe, Jr., from its Buffalo plant to its branch sales office, located in 1059 First National Bank Building, Chicago, to promote the sales of Farrel-Sykes herringbone gears and gear units.

New Crompton & Knowles Chief Executives

John F. Tinsley

Rufus S. Frost

John F. Tinsley, whose election to the presidency of Crompton & Knowles Loom Works, Worcester, Mass., was reported in our last issue is widely known in American industry for his interest in the broader problems of business, employee education, labor relations, and civic activities. He was born in New Jersey and is a graduate of Rutgers University, from which he also has received the degrees of Master of Science and honorary Doctor of Science. Mr. Tinsley came to Worcester in 1907 to become sales engineer for the American Steel & Wire Co., after having served as assistant electrical engineer in the U. S. Signal Corps on the Pacific Coast. He soon became assistant to the district manager and in 1909 was appointed superintendent of the cable plant of the company at Worcester; then superintendent of the South Works until 1916, when he resigned to assist the late Lucius J. Knowles in connection with reorganization plans at the Crompton & Knowles establishment. For the last 20 years he has been vice-president and general manager. Mr. Tinsley's outside affiliations include directorships in various banks and public utilities. He is chairman of the Reconstruction Finance Corp's advisory board at Boston; a member of the advisory board of the U. S. War Department, Boston Ordnance district; director and former vice-president of the New England Council; director of the National Association of Manufacturers, and a regional director of the National Foreign Trade Council. He is also a past-president of the National Association of Textile Machinery Manufacturers; and was chairman of the Code Authority for the Textile Machinery Industry under the NRA. For several years he was a trustee of Rutgers; is vice-president of the Worcester Chamber of Commerce and president of the Worcester Trade Schools.

Rufus S. Frost, assistant general sales manager and clerk of the corporation, has been elected vice-president of Crompton & Knowles Loom Works. Mr. Frost is a native of New York, and was graduated from Sheffield Scientific School, Yale University, in 1915. In the fall of that year he joined the engineering staff of Crompton & Knowles. After field artillery service in the World War in France, he returned to the company at Worcester and became assistant sales manager in 1925, a director of the corporation in 1930, and clerk in 1934. He is a trustee of the Worcester County Institution for Savings.

NEW PUBLICATIONS

PRINCIPLES OF COTTON MANUFACTURING; by William King; William King, 3514 Walkley Ave., Montreal, Canada.

The object of this 185-page book is to present in as concise a manner as possible an authoritative discussion of modern cotton manufacturing methods. Included in the book are chapters on raw cotton; opening, blending, and picking; carding; drawing; roving; ring spinning; spooling, warping, and slashing; and weaving. An appendix contains notes on waste losses, together with a number of useful tables. While much of the text in the book is new, some of the material written by the author has appeared in leading textile magazines. The author is well known in the Canadian textile industry and is now managing editor of the *Canadian Textile Journal*. An edition of the book in the French language has been published by Dominion Textile Co., Ltd., and will be used by students from the mills of that company.

The book is unique in that it gives a brief, but comprehensive, picture of cotton manufacturing technique, and, at the same time, gives practical information on causes and remedies for fabric defects, resetting of machines, and other phases of mill operation. As a result, while the book is intended primarily for students and newcomers to the textile industry, it also is of value to experienced mill men. Certain types of equipment described in the book are of English make, and are not commonly found in cotton mills in the United States. Otherwise the subject matter, in general, applies with equal force to cotton manufacturing methods in this country and in Canada.

TWENTY-FIFTH ANNIVERSARY BLUE BOOK, 1913-1938; National Association of Waste Material Dealers, Inc., New York; 408 pages; price $5.

The National Association of Waste Material Dealers has celebrated its twenty-fifth anniversary by bringing out its third and largest year book, similar books having been issued in 1923 and 1928. The volume contains all the material classifications and trade customs affecting the waste material industry. The volume also includes historical sketches of individual concerns based on information in the files of the association. As becomes an anniversary number there is considerable historical material including a list of charter members and an illustrated story of the beginning and progress of the association.

Among the classifications and standards given are the following: cotton rag classification, mixed twines classification, standards for packing woolen rags, classification covering bagging, specifications for sale of wiping cloths, specifications for rags for conversion into wiping cloths. The volume also includes a useful collection of statistics regarding waste materials.

US-ALL, by Sam Mims; The Caxton Printers, Ltd., Caldwell, Idaho; $2.50.

Primarily written for juveniles, this book on plantation life in the Deep South carries a symbolic message to all who indulge in the paternalistic type of management, whether it be on the farm or in industry.

The author has presented in a colorful way the resentment which grows in the hearts of the rank and file who enjoy the benefits of such a system, both toward the provider of the benefits and toward the favored few who through diligence and hard work and application of the paternalistic advantages grow above the average level in leadership and economic scope.

It is a moving story, and could be read by both old and young, as a further study in industrial relations, particularly as applicable to the more youthful element.

ORGANIZATION AND OPERATION OF THE ADVERTISING DEPARTMENT, Volume Four; By the Committee in Charge of Study on Organization and Operation of the Advertising Department; Association of National Advertisers, Inc., New York.

The advertising department of Pepperell Mfg. Co., Boston, is submitted to clinical analysis in this, the fourth volume of a series on advertising department organization and operation. The volume comprises three case studies, Pepperell being the only textile firm in the group. In an explanatory foreword, Allyn B. McIntire, chairman of the A.N.A.'s committee conducting the study, and vice-president of Pepperell, emphasizes the difficulty of standardizing the creative phases of advertising and adds that the committee's work to date indicates that there is no such thing as a "typical" advertising department. The Pepperell report traces the history and evolution of that firm's advertising department from its inception in 1924 through many changes and expansions to its present broad scope.

TEXTILE WORLD MILL DIRECTORY for 1938; published by Textile World Publications, 330 West 42nd St., New York; $3.00.

The new mill directory is completely up to date, incorporating in its 476 pages the hundreds of changes which have taken place in the textile industry throughout the year.

Like its predecessors, it retains the simplified alphabetical arrangement of the mills by States, cities and towns, along with a complete listing of mill information.

Again it has been the aim of the publishers to compile for the textile industry, a mill directory that will be of maximum value to anyone interested in contacting the men and plants that make up that industry.

SOJOURNER TRUTH, GOD'S FAITHFUL PILGRIM, by Arthur Huff Fauset; University of North Carolina Press, Chapel Hill, N. C., $1.00.

This slim volume, not 200 pages in length, tells in a gripping and imaginative way the story of the most remarkable negro woman who ever lived: the slave Isabella, unable to read or to write, who upon gaining her freedom traveled about the country preaching in an unlettered way but with great influence. Wherever prevailing subjects of the 19th century—abolition, woman suffrage, negro education—were under discussion, there was Isabella (now Sojourner Truth) and all too frequently she brought order, with a few well-thrust remarks, to a meeting which approached pandemonium.

Though not identified with the textile industry, the story of Sojourner brings a message of clairvoyance which is almost unbelievable, for before her death, in 1883, she prophesied the great economic upheaval of the 20th century, with its renewed emphasis on the majesty of toil, its insistence on the rights and the place of the worker. Emancipation she fought for and realized; woman's rights and rehabilitation of the negro race she fought for, and they, too, have come to pass. To all manufacturers who are interested in industrial relations, Sojourner Truth is interesting as biographical history.

FREE FOR THE ASKING

READERS interested in literature reviewed on this page may secure copies by writing to TEXTILE WORLD, 330 West 42d St., New York, giving their company connection.

Chemicals. Carbide & Carbon Chemicals Corp. Ninth Edition of *Synthetic Organic Chemicals*, an 80-page book containing specifications, properties, and uses of 105 industrial organic chemicals.

Floor Maintenance. Stonhard Co. Pamphlet describes company's method of keeping floors safe, smooth, and sanitary; includes photographs of most frequent sources of floor disintegration, and tells how to stop such troubles.

Valves and Fittings. Alloy Steel Products Co. Catalog covering stainless steel valves and fittings, including complete list of standard alloys in which the company's products may be obtained.

Knitting Machine Maintenance. Thomas & Skinner Steel Products Co. Circular describes company's equipment for replacing, grinding and polishing of carrier tubes on full-fashioned knitting machines.

Fans. Green Fuel Economizer Co., Inc. Bulletin No. 166 illustrates and describes fans for forced and induced draft; includes data on blade construction, volume control, etc.

Travelers. Victor Ring Traveler Co. July, 1938 issue of *The Traveler* contains article on "Producing Flake Yarn from Cut Rayon."

Corrosion-Resistant Metals. Revere Copper & Brass, Inc. Bulletin describes and illustrates characteristics and applications of Herculoy, an alloy combining high strength and excellent physical properties with a high resistance to corrosion.

Weaving Equipment. Crompton & Knowles Loom Works. Issue No. 5 of *C. & K. Photo News* describes and illustrates recreational facilities maintained by the company, and two mills which are currently modernizing their weaving equipment.

Furnace Construction. Plibrico Jointless Firebrick Co. Booklet describes use of company's products in construction of boiler settings, refractory linings, etc.

Instruments. C. J. Tagliabue Mfg. Co. Catalog No. 1060-D illustrates and describes new line of TAG indicating, recording and controlling instruments for temperature and pressure.

Electrical Equipment. Westinghouse Electric & Mfg. Co. Leaflet 43-131 describes portable voltage transformers designed for use with Westinghouse portable instruments and recorders; pamphlet 43-137 describes company's line of portable current transformers; booklet B2084-A describes type C steam turbines; and data sheet 33-675 covers type U De-ion air circuit breakers, designed for indoor service.

Knitting Equipment. Wildman Mfg. Co. Booklet describes company's single-head, single-unit machine for production of full-fashioned hosiery, pointing out the desirability of its use in production of fine-gage hosiery.

Valves. Homestead Valve Mfg. Co., Inc. Reference Book No. 38 features boiler blow-off valves, lift-plug valves, and a new line of O.W.G. (oil, water, gas) valves; includes section containing dimensions, tables, etc.

Dyes. Ciba Co., Inc. July, 1938 issue of *Ciba Review* contains articles on the early history of silk, and insert giving formulas for use of new vat printing products, as well as samples of fabrics so treated.

Open-Knife Switches. Trumbull Electric Mfg. Co. Bulletin 400 describes company's line of open knife-switches, fuse blocks, and cut-outs.

Sizing Equipment. Charles B. Johnson. June, 1938 issue of *Rayon Warp Sizing Specialist* contains articles on modernization of sizing equipment, factors bearing on correct sizing, etc.

Belting. J. E. Rhoads & Sons. Leaflet describes Rhoads Tannate leather belts and their uses and advantages in textile-mill operation.

Glass Yarns. Wishnick-Tumpeer, Inc. June, 1938 issue of *Wit-combings* contains article entitled "Fiberglas and Rubber" which describes uses of products made by combination of these two materials.

Electric Motors. General Electric Co. Pamphlet GEA-1542C describes and illustrates construction and operation characteristics of company's Type B direct-current motors; 8-page pictorial booklet, GEA-1929A, describes 21 low-speed drives that have been modernized with G.E. gearmotors; Bulletin GEA-2026A contains information on operating characteristics, construction features, and applications of the G.E. brake-motors.

Cotton-Yarn Manufacture. Dixie Mercerizing Co. 12-page, large-size booklet presents, in pictorial form, the story of the machines and people who make Dixie yarns.

Chemicals. Glyco Products Co., Inc. Several circulars describing water-soluble resins, synthetic waxes, emulsifying agents, foam reducers, and flameproofing materials.

Air Eliminator. Gorton Heating Corp. Leaflet describes company's high pressure air eliminators, used for quick and automatic venting of dryers, steam coils, unit heaters, and similar equipment.

Materials Handling Equipment. Lewis-Shepard Sales Corp. Leaflet entitled "For Greater Safety!" describes company's lifting equipment, hand trucks, stands for storing and pouring from carboys and drums, etc.

Electrical Connectors. Burndy Engineering Co., Inc. Two leaflets, one describing clamp terminals, the other pressure connectors, manufactured by the company.

Remote Pressure-Gage. Ashcroft Gauge Division of Manning, Maxwell & Moore, Inc. Booklet describes company's new pneumatic transmitting Duragage, for remote pressure reading over distances up to 1,000 ft.

Credit. Commercial Credit Co. Two booklets, "Capital at Work" and "Credit and Finance Today"; former describes the company's open account financing and the new limited-loss clause, the latter summarizes the company's commercial banking services for manufacturers, distributors and dealers. Both are handsomely illustrated.

TEXTILE WORLD ANALYST

TEXTILE WORLD'S index of textile mill activity for July showed a continuation of the upward trend noted the previous month. The July index was 13% above the June index which in turn was 6% over the May index. All branches of the industry shared in the upturn in July, rayon consumption being 82% above June, wool 22% up, silk 4% up, and cotton 1% up. It should be emphasized that this trend was contra-seasonal. Incidentally, the August figures—when available—will show a further expansion in activity.

TEXTILE WORLD'S compilation of manufacturing margins on carded cotton fabrics and yarns for August registered a sharp and serious decline in the fabric margins, but firmness—with in fact a slight increase—in the yarn margins. The former fell to still more unprofitable levels, the average off nearly 1c. from July. (Tables I and II.)

TEXTILE WORLD'S price index numbers for August showed mixed trends. In the cotton series, the raw material and cloths were down, but yarns unchanged. In the wool group, the raw material was up, but tops, yarns and cloth unchanged. The silk index was down 1 point, and the rayon index up 1 point.

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

	Cotton Index Numbers				Wool Index Numbers				Silk Index	Rayon
Date	Cotton	Yarns	Gray	Colored	Wool	Tops	Yarns	Cloth	Raw-Silk	Index
1923-25	100	100	100	100	100	100	100	100	100	100
1930 ave.	50	61	61	72	58	61	72	90	109	46
1931 ave.	32	68	46	59	46	49	59	71	32	32
1932 ave.	24	37	37	60	36	40	52	57	21	28
1933 ave	39	56	55	50	53	59	62	80	21	26
1934 ave.	61	67	70	62	63	70	75	91	17	25
1935 ave.	60	68	67	69	56	58	70	88	22	24
1936 ave.	45	63	63	68	72	78	76	93	23	25
1937 ave.	42	65	67	74	79	82	85	107	25	27
Jan. 1937	48	73	81	76	90	93	88	108	27	26
Feb. 1937	48	74	78	76	90	92	90	108	27	26
Mar. 1937	53	78	80	78	87	88	90	112	27	26
Apr. 1937	53	80	82	80	84	86	90	112	27	27
May, 1937	49	75	76	78	82	84	89	112	24	27
June 1937	47	70	71	78	78	82	88	112	25	27
July 1937	45	65	67	78	78	82	88	112	26	27
Aug. 1937	37	59	62	78	80	82	88	112	25	27
Sept. 1937	33	54	56	73	78	81	87	107	25	27
Oct. 1937	31	51	53	67	73	76	82	100	23	27
Nov. 1937	29	48	50	61	66	68	74	97	22	27
Dec. 1937	30	47	49	60	60	64	70	97	21	27
Jan. 1938	32	47	49	62	57	63	68	97	21	26
Feb. 1938	33	47	50	62	53	60	67	97	22	23
Mar. 1938	33	47	50	62	51	58	66	88	22	23
Apr. 1938	32	46	49	62	51	57	66	80	22	23
May 1938	31	46	48	62	50	57	64	80	21	22
June, 1938	31	45	47	61	49	57	64	80	21	21
July, 1938	33	48	50	57	53	59	64	80	24	21
Aug. 1938	31	48	48	53	56	59	64	80	23	22

Table I. Carded Fabric Margin

Date	Margin in cents	Date	Margin in cents
August, 1933..	21.4	May, 1936....	14.3
October, 1933..	19.1	July, 1936 ..	16.9
January, 1934	18.4	August, 1936..	18.0
April, 1934..	17.6	September, 1936	18.4
July, 1934 ..	15.5	October, 1936	21.2
August, 1934..	16.6	November, 1936	25.4
September, 1934	18.6	December, 1936	28.1
October, 1934 .	17.4	January, 1937	28.6
November, 1934	15.8	February, 1937	26.2
December, 1934	16.2	March, 1937..	25.6
January, 1935	16.2	May, 1937.....	23.1
February, 1935	16.0	June, 1937 ..	21.2
March, 1935..	15.9	July, 1937....	20.1
April, 1935....	16.1	August, 1937	19.4
May, 1935 ...	16.0	September, 1937	18.1
June, 1935....	16.5	October, 1937 .	17.3
July, 1935..	15.2	November, 1937	16.9
August, 1935..	17.1	December, 1937	15.7
September, 1935	17.9	February, 1938	16.2
October, 1935	17.7	March, 1938	16.1
November, 1935	16.4	April, 1938...	15.9
December, 1935	16.2	May, 1938.....	15.9
January, 1936	17.2	June, 1938....	15.2
February, 1936	16.5	July, 1938 ...	16.5
March, 1936...	15.5	August, 1938	15.6
April, 1936....	14.3	Aug. 3 ..16.5	
June, 1936....	15.3	Aug. 10.. 16.0	
		Aug. 17.. 15.4	
		Aug. 24...15.0	
		Aug. 31.. 15.2	

Table II. Carded Yarn Margin

Date	Margin in cents	Date	Margin in cents
August, 1933	23.5	July, 1936 ...	15.0
October, 1933.	20.0	August, 1936	16.5
January, 1934	18.3	September, 1936	16.5
April, 1934...	15.9	October, 1936	17.2
July, 1934.....	14.6	November, 1936	18.0
August, 1934..	15.3	December, 1936	20.6
September, 1934	15.6	January, 1937	20.8
October, 1934.	14.6	February, 1937	21.2
November, 1934	13.3	March, 1937 ..	21.3
December, 1934	13.5	April, 1937 ..	22.6
January, 1935	13.5	May, 1937....	21.2
February, 1935	13.9	June, 1937....	19.8
March, 1935.	14.4	July, 1937....	17.8
April, 1935	14.1	August, 1937..	17.2
May, 1935 ..	13.8	September, 1937	16.1
June, 1935 ..	14.5	October, 1937.	15.3
July, 1935	14.3	November, 1937	14.7
August, 1935	15.3	December, 1937	13.7
September, 1935	15.4	January, 1938	13.5
October, 1935	15.8	February, 1938	12.9
November, 1935	16.3	March, 1938..	12.9
December, 1935	16.3	April, 1938 ..	12.7
January, 1936	18.4	May, 1938.....	12.8
February, 1936	17.5	July, 1938....	13.3
March, 1936 .	16.3	August, 1938..	13.8
April, 1936 ...	15.6	Aug. 3.. 13.6	
May, 1936.....	14.8	Aug. 10 . 13.7	
June, 1936....	14.6	Aug. 17.. 13.8	
		Aug. 24.. 13.9	
		Aug. 31 ..13.8	

Key wool prices with usual comparisons follow:

	Sept. 1, 1938	Aug. 1, 1938	Sept. 1, 1937	Sept. 1, 1936
Fine and fine med. territory	$0.63	$0.65	$0 97	$0.85
Ohio ⅜s	.31	.32	44	39
Tops fine 64-66s	.88	.90	1 18	1 08
Average ⅜s	.73	.75	1 05	.97
High ⅜	.65	.67	1 00	.88
Noils, fine	.58	.60	75	.68
⅜	.45	.45	.58	.55
2-40s 60s wstd yarn	1.35	1.35	1.80	1.52½
2-32s 56s wstd. yarn	1.15	1.15	.....	.....
8020 serge	1.65	1.65	2.27½	1.82½

Current statistics on wool consumption and mill activity:

Wool consumed, clean equiv.	July (weekly avge.)	June (weekly avge.)
Apparel wool, lb	4,549,000	3,867,000
Carpet wool, lb	999,000	828,000
Machinery activity (40-hr. shift)		
Looms (50-in. and wider)	67 2%	62.6%
Carpet looms	37 5%	33 6%
Combs	113 8%	96 3%
Worsteds spindles	64 2%	63 2%
Woolen spindles	78.2%	65.3%

Key rayon prices and statistics follow:

Prices	Sept. 1, 1938	Aug. 1, 1938	Sept. 1, 1937	Sept. 1, 1936
Viscose process				
75 denier (18-30 fils.)	$0.74	$0.74	$0.93	$0.90
100 denier (40 fils.)	.68	.68	.82	.79
150 denier (40 fils.)	.51	.51	.63	.60
Acetate process				
150 denier	.54	.54	.63	.60
Cupra. process				
150 denier (112 fils.)	.52	.52	.68	.65
Rayon staple 1½, 3 and 5½ denier	.25	.25	.28	.28

Statistics	Indices of Deliveries Aug.	July	June
In year 1938	895	841	473
In year 1937	691	696	693

Key silk prices and statistics follow:

Prices	Sept. 1, 1938	Aug. 1, 1938	Sept. 1, 1937	Sept. 1, 1936
Crack XX 13/15 wh. 78%	$1 76	$1 77	$1 78½	$1.66
Tram, 5thd Japan 85%	2 41	2 44	2 75	2 34
Tram Crack XX 78%	2 33	2 36	2 43	2 25
60s-2, spun silk	3.00	3 00	3 15	2.95

Statistics:	Imports	Approximate deliveries	Stocks at warehouses
August, 1938	35,946	48,094	39,747
July, 1938	30,441	32,593	42,305
June, 1938	38,933	31,492	44,457

Key cotton prices with usual comparisons follow:

	Sept. 1, 1938	Aug. 1, 1938	Sept. 1, 1937	Sept. 1 1936
Spot Cotton, N. Y.	8 35	8 61	9 29	11 87
" high previous month	8 61	9 21	11 35	12 89
" low previous month	8 25	8 64	9 38	11 70
10s hosiery cones	18	18	23½	24½
10s/2 carded skeins	19½	19½	22	24½
20s/2 carded peeler warps	21	21	32	27½
60s/2 combed peeler warps	45½	48	54	55
60s/2 mercerized cones	63	63	72	68
37 in., 3-yd. drill	6¾	6¾	8½	8¾
38½-in. 64 x 60s	4 1/16	4¼	5½	5¾
36-in. 4-yd. 56 x 60s	5½	5 1/16	6¾	7¼
Denim, 2.20s	10½	10½	16	13

Statistics concerning operation and the raw material situation:

	July	June
Spindle activity (% capacity)	100.2	91.9
Spindle activity (millions of hours)	5,919	5,665
Cotton consumed (bales)	449,511	442,742
Cotton exported (bales)	195,706	175,878
Cotton imported (bales)	25,047	15,184
Cotton ginned to Aug. 1 (bales)	158,115	.....

Rayon fabric shipment index reported by the National Rayon Weavers Association and the National Federation of Textiles, follows:

1934 = 100	July 1937	June 1938	July 1938
Taffetas, twills, linings and other staples	254	189	254
Dress goods, novelties and other fancies	97	62	97
Total	152	105	148

THE PERSONAL PAGE

J. H. McEwen will be president of the Dothan (Ala. Silk Hosiery Co., which is being established. Mr. McEwen is vice-president of the McEwen Knitting Co., Burlington, N. C. **P. K. Holt,** of Burlington, secretary of the McEwen Knitting Co., will be actively in charge of the Dothan Company, and will be secretary and treasurer. **Ed. L. Rackley,** superintendent of the mechanical department of McEwen Knitting Co., will be in charge of production at the Dothan mill.

Capt. Elliott Springs, Fort Mill, S. C., president of Springs Cotton Mills, who already flies a 300 hp. Beachcraft airplane, has purchased a new high-speed airplane manufactured by the same concern with twin motors of 300 hp. each, of two-pilot, six-passenger capacity.

R. W. Arrington, Greenville, S. C. active vice-president of the Union Bleachery, has been selected to serve as one of the three employers on the State Advisory Council of the South Carolina Employment Service.

Howard K. Edgerton is now president and treasurer of Lebanon (Tenn.) Woolen Mills, succeeding the late John E. Edgerton. He was formerly vice-president and general manager of the mills.

W. C. Vereen, president of Moultrie (Ga.) Cotton Mills, celebrated his 79th birthday on Aug. 5. He is still active in all of his business interests.

John K. Whitaker has been elected president of Hesslein & Co., and of Neuss, Hesslein & Co., New York, succeeding the late Edgar J. Hesslein. Mr. Whitaker was previously vice-president of both of these organizations and had been associated with Mr. Hesslein for about 26 years.

Fuller E. Callaway, Jr., president of Callaway Mills, LaGrange, Ga., has been elected to membership in the New York Cotton Exchange.

S. L. Lewis, Jr., who joined the organization of Bliss Fabyan & Co. in 1929, has been elected vice-president of that organization. He is a graduate of the University of Tennessee and of the Philadelphia Textile School. He has been in charge of merchandising rayon fabrics.

Marvin B. Smith, Jr., has resigned his position with the Burlington Mills Corp., to become manager of the newly organized Liberty (N. C.) Hosiery Mills, Inc.

Howard Barton

Howard Barton recently succeeded **A. Rigby** as superintendent of Marshall Field & Co. Silk Mill, Spray, N. C. He has been connected with the company for nearly 28 years.

Ralph Alexander has become assistant treasurer of S. Slater & Sons, Inc., Slater, S. C., succeeding **James A. Lybrand, Jr.,** who resigned to become associated with the Carter Fabrics Corp., Greensboro, N. C.

Joseph J. Bradley, general agent for the Merrimack Mfg. Co., Huntsville, Ala., has resigned that position to re-enter the cotton business in Huntsville. **Henry M. McKelvie** until recently vice-president and general manager of the Firestone Mills at Gastonia, N. C., succeeds Mr. Bradley.

William A. Leavy, a sales executive with Schwarzenbach Huber Co., New York, for many years, has established his own organization to be known as William A. Leavy, Inc., at 381 Fourth Ave., where he will merchandise a general line of silks and rayons.

R. C. McQuirk has accepted position of sales and advertising manager of the Huffman Full-Fashioned Hosiery Mills, Morganton, N. C., which is now under construction. Mr. McQuirk will assume his new duties Sept. 15. He was formerly vice-president of the Archer Hosiery Mills.

Charles M. Elliott, associated with Wiscassett Mills Co., Albemarle, N. C., has resigned and gone to Hendersonville, N. C., where he has opened the Laureldale Hosiery Service.

Robert W. Elton, who has had many years' experience in the bedspread industry, has joined the Iselin-Jefferson Co., New York, and will work under **Ray Walker** in the domestics division.

Richard C. Price, for over 20 years associated with the old firm of Fred Butterfield & Co., New York, and more recently associated with the fabric department of the Celanese Corp., has become associated with the sales division of U. S. Finishing Co., New York.

Robert L. Seixas, recently associated with Bliss Fabyan & Co., has become Los Angeles representative for Woodward, Baldwin & Co., New York. He succeeds **Harry F. Leveson,** who is resigning as of Sept. 30.

James Duress, formerly of the wool firm of Henderson & Co., Philadelphia has become Philadelphia representative of Asa Peck & Co., Providence, R. I.

Robert F. Bowe, active for many years in the New York gray goods market, has joined the gray goods division of Hesslein & Co., New York. Mr. Bowe was connected with the Hunter Mfg. & Commission Co. and its successor, Southeastern Cottons, Inc., for a period of almost 20 years.

Thomas McDarby has rejoined the selling organization of Wilson & Bradbury, New York, after association of about 18 months with the Colonial Coverlet Co. He will manage the Carolina Kraft Department in the distribution of Chenille bedspreads.

Edmon G. Luke, for the last 10 years with Bruns-Nordeman Co., Inc., joined the fine goods department of Bliss Fabyan & Co., New York.

Ernest H. Doute has become superintendent of Slingsby Silks, Ltd., Brantford, Ontario, Canada, after a number of years experience as fabric technician on the New York market. He was most recently with the Angle Silk Mills.

Lee Beyer is now associated with the selling organization of Suncook Mills, Inc., New York. He was formerly with the gray goods department of J. P. Stevens & Co.

S. W. Hays has been appointed selling agent with offices in New York for the Spencer Mills of Spindale, N. C. For some years previous Mr. Hays has been associated with the fine goods department of Bliss Fabyan & Co.

John B. Black has become sales manager of Federal Fabrics Corp., New York. He was for the last 15 years associated with Schwarzenbach Huber Co.

Roy Sanders, formerly with Department 2 of the American Woolen Co., has become associated with Herbert R. Leeds & Co., Inc., New York.

Al Van Houten has joined the Seyer Silk Dyeing & Finishing Co. as supervisor of sales. He will divide his time between the plant in Haledon, N. J., and the New York office.

E. W. Bemis, has been appointed sales representative for the American Mfg. Corp., New Orleans, La. He will make his headquarters in Chicago and cover the Midwestern territory. He was for the last 20 years with Marshall Field & Co.

J. C. Smith has joined the new hosiery selling organization of Crawford & Finnell, New York. He was for the last 14 years with James Jamison & Co.

Textile Calendar

- *Southern Hosiery Manufacturers Association, annual convention, Grove Park Inn, Asheville, N. C., Sept. 16 and 17, 1938.*
- *American Society of Mechanical Engineers, fall meeting, Providence - Biltmore Hotel, Providence, R. I., Oct. 5 to 7, 1938.*
- *American Association of Textile Technologists, dinner meeting, Architectural League, New York, Oct. 5, 1938.*
- *Committee D-13, American Society for Testing Materials, fall meeting, New York, Oct. 19 to 21, 1938.*
- *American Association of Textile Chemists & Colorists, annual meeting and convention, Atlanta-Biltmore Hotel, Atlanta, Ga., Dec. 2 and 3, 1938.*
- *National Exposition of Power and Mechanical Engineering, thirteenth show, Grand Central Palace, New York, Dec. 5 to 10, 1938.*
- *Industry-wide Hosiery Conference, New York, Jan. 18 and 19, 1939.*
- *Southern Textile Exposition, thirteenth show, Textile Hall, Greenville, S. C., April 3 to 8, 1939.*
- *Knitting Arts Exhibition, 35th annual show, Commercial Museum, Philadelphia, April 17 to 21, 1939.*

H. W. Taylor has become general manager of the Newnan (Ga.) Cotton Mills, in charge both of production and sales.

August Wirtz has become superintendent of French spinning at the Wood Worsted Mills of the American Woolen Co., Lawrence Mass. He succeeds **Thomas Bradbury** who recently resigned. Mr. Bradbury laid out the Shawsheen Mill under the direction of the late William M. Wood and was agent at that mill for some time. Mr. Wirtz was recently with the Bell Mfg. Co., Worcester, Mass.

Harry Boeglin, formerly head printer for Textile Dyeing & Printing Co. of America, Inc., Fair Lawn, N. J., joined the staff of the Lincoln Print Works, Paterson, N. J., as superintendent of the print shop and head colorist.

Sidney D. Wilson recently resigned as superintendent of the Cocheco Woolen Mfg. Co., Rochester, N. H., to accept the superintendency of the Jefferson Mfg. Co., Jefferson, Mass.

H. H. Iler, plant engineer, Union Bleachery, Greenville, S. C., was recently elected chairman of the Greenville (S. C.) section of the American Society of Mechanical Engineers. **R. S. Pruitt,** of Anderson, was elected vice-chairman, and **James H. Sams,** of Clemson, was made secretary-treasurer.

W. B. Smith, of Nashville, Tenn., has become superintendent of Barrow Mfg. Co., Winder, Ga., succeeding **C. E. Patat,** resigned.

W. H. Grant, office manager at Burlington Mills Corp., Greensboro, N. C., has resigned to accept a similar position at Central Falls (N. C.) Mfg. Co., succeeding **W. K. Holt, Jr.,** resigned.

H. E. Runge, formerly superintendent of Mathews Cotton Mills, Greenwood, S. C., has become associated with Panola Mills Co. and Grendel Mills, Greenwood, S. C.

John A. Bangle, superintendent of Proximity Mills, Greensboro, N. C., is retiring Sept. 1. He will be succeeded by **John D. Scott,** now assistant superintendent. Mr. Bangle has been associated with the firm for 43 years, starting as a laborer in 1895.

Joe A. Lyons, Jr., night superintendent of the Orr Cotton Mills, Anderson, S. C., has been chosen to serve as one of three employers on the State Advisory Council of the South Carolina Employment Service. Mr. Adams is chairman of the South Carolina Division of the Southern Textile Association.

C. C. Hope has resigned as overseer of spinning at the Woodlawn plant of the American Yarn & Processing Co., Mount Holly, N. C.

Robert Covington, Davenport Hosiery Mills, Chattanooga, Tenn., vice chairman of South Central Section of A.A.T.C.C., snapped at that section's recent outing at Lookout Mountain.

Guy W. Pittman, who has been in charge of the general storeroom of the Bibb Mfg. Co., Macon, Ga., for some time, has resigned. He has been with the company for 21 years, and is a brother of Henry W. Pittmann, manager of the company.

James Gilman, until his retirement two years ago head of the spinning department of Cyril Johnson Woolen Co., Stafford Springs, Conn., observed his 54th wedding anniversary July 28. Mr. Gilman is 78 years old and at the time of his retirement, he had completed 66 years of continuous service with the Johnson mills.

S. J. Adams has become superintendent of the Radford (Va.) Weaving Co. He was formerly associated with the Spencer Mills, Spindale, N. C.

Weld D. Shoonmaker has been appointed assistant to **Frank Splaine,** superintendent of the Cocheco Woolen Mill, East Rochester, N. H.

Stanley J. Wrubel has been named worsted yarn superintendent at Champlain Mills of American Woolen Co., Winooski, Vt. He was formerly with the Lymansville (R. I.) Co.

J. I. Laurens, formerly with Beaumont Mills, Spartanburg, S. C., has become overseer of weaving at Drayton (S. C.) Mills.

L. E. Milks has resigned as general manager of the Cetwick Silk Mills, Ashboro, N. C. He was superintendent before becoming general manager.

Frank Robbins, manager of the Edgar Weaving Co., New Bedford, Mass., was chairman of the committee in charge of the sixth annual clambake and field day attended by 350 employees and friends.

P. Leroy Lamb, treasurer

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of Nonquitt Mills, New Bedford, Mass., was guest of honor at a clambake and field day attended by more than 600 employees of the concern.

William G. Betsch, of Wm. Iselin & Co., Inc., New York, has been appointed chairman of the textile fraud-prevention prosecuting committee, of the National Association of Credit Men. He succeeds **Konrad F. Braun,** of Commercial Factors Corp., who, however continues as a member of the committee. **J. A. Stack,** of Stern & Stern Textile Importers, Inc., New York, has been named vice-chairman of the group.

Charles Orleman was presented with an inscribed loving cup last month on the completion of 50 years' service with James Talcott, Inc., factors, New York.

D. Sidney Rollins has resigned as agent of the Brampton Woolen Co., Newport, N. H., but he continues as member of the board of directors.

Charles A. Hull, for 21 years with the New York office of Mount Hope Finishing Co., North Dighton, Mass., has resigned.

Lester C. Gill has been appointed sales representative to the cutting-up trades of the Carolinas of the thread dept. of Standard-Coosa-Thatcher Co., Chattanooga, Tenn.

Thomas J. Wallner, of Pulaski, Va., has been elected president of the newly-organized Carroll Silk Hosiery Mill, Inc., Hillsville, Va. Other officers elected were **George F. Blankenship,** vice-president; **B. P. Goad,** secretary; and **Walderman Wallner,** treasurer. The new mill will manufacture full-fashioned hosiery.

T. H. Whitesides has become general superintendent of the Bessemer City (N. C.) plant of Algodon Mills. He was formerly connected with Thread Spinners, Lincolnton, N. C.

Obituary

George E. Seeger, aged 53, secretary-treasurer of the Duofold Health Underwear Co., Mohawk, N. Y., died at Ilion, N. Y. recently.

James W. Duthie, aged 60, credit manager for Taylor, Clapp & Beall, New York, died Aug. 16. He had previously been connected with the firm of Tatum, Pinkham & Greey for 15 years.

Frank A. Smith, aged 53, associated with the Seneca Textile Corp., New York, for the last 17 years, died Aug. 15.

Richard B. Morrell, aged 78, former head of the Morrell Mills, upholstery fabrics, Philadelphia, died Aug. 15. After several years in the business Mr. Morrell established his own mill in 1889.

Samuel Sibilkin, aged 76, president of the Merrimack Finishing Co., Haverhill, Mass., died Aug. 16.

Eugene A. Abbott, treasurer of A. Theodore Abbott Mfg. Co., upholsteries, Philadelphia, aged 65, died Aug. 18. He had been with the company since its organization in 1900 by his father.

Robert C. Ashworth, aged 66, associated with his father and brother for 53 years in the card clothing business, died suddenly in Boston Aug. 17. He had been president of Ashworth Bros., Fall River, Mass., since 1910.

James Alonzo Abernethy, aged 86, banker and textile executive, died at Lincolnton, N. C., Aug. 21. He built a small cotton mill at Laboratory, Lincoln County, N. C., 51 years ago and founded the Southside, Wampum and James Cotton Mills.

Thomas H. Nicholson, aged 40, in charge of the Reading, Pa., office of L. P. Muller & Co., Philadelphia yarn merchant, died Aug. 19.

Edward W. Burns, aged 74, for about 50 years with Hockanum Mills Co., Rockville, Conn., most recently as overseer of finishing, died last month.

John E. Quinn, aged 70, president of Service Dyeing & Winding Co., Harrisville, R. I., died last month at Edgewood, R. I.

Frank E. Bauer, aged 62 associated since 1900 with Pfaltz & Bauer, Inc., New York, importers of chemicals and scientific apparatus, died recently.

David Ferns, aged 78, former paymaster of Providence Textile Finishing Machinery Co., died at Riverside, R. I., Aug. 29. He retired in 1931.

James H. Hull, aged 72, former secretary-treasurer of Shelby (N. C.) Cotton Mills, and at one time general manager of Gaston Mfg. Co., died recently.

John H. Leonard, aged 56, former president of Dodge Textile Co., Providence, R. I., died suddenly in New York, Aug. 25. He was in charge of Fall River (Mass.) division of Wentworth Co., which had merged with the Leonard Mfg. Co., Norwich, Conn., in 1936.

Otto A. Belger, aged 50, textile machinery inventor and until recently associated with the H. & B. American Machine Co., Pawtucket, R. I., lost his life on Aug. 22 in an automobile accident near South Hill, Va. He invented a roving test machine and superdraft speeder for cotton mills, and was supervising an installation at the Rockford Mfg. Co., Rockford, Tenn., at the time of his death. At one time he operated the Belger Co., Watertown, Mass.

Hugh M. Clarke, aged 46, first vice-president of the Armstrong Cork Co., Lancaster, Pa., died recently in Lancaster. He had been with the firm for 25 years.

E. J. Hesslein, president of Hesslein & Co., and of Neuss, Hasslein & Co., New York, died last month. He has been a figure in the export of American textiles for over 50 years, starting in his father's Worth St. office in the 80's.

James W. Cannon, Jr., aged 57, son of the late James W. Cannon, founder of Cannon Mills, Kannapolis, N. C., died at his home in Gastonia, N. C., Aug. 22. He was secretary of Cannon Mills but had retired from active management several years ago.

John D. Horsfall, aged 74, superintendent of Myrtle Knitting Mills, Unionville, Conn., died Aug. 22. He was president of J. Broadbent & Sons, with which he had been associated since 1880, when that firm was taken over by Myrtle Knitting Mills.

Harold F. Smith, aged 60, for many years in the woolen business, latterly with American Woolen Co., and Sawyer, Regan Co., New York, died recently as result of an automobile accident at Lebanon, N. J.

Herbert Mygatt Wilcox, aged 55 manager of the New Products Division of Westinghouse Electric & Mfg. Co., New York, died recently.

Henry J. Holst, aged 53, long known in the New York wool goods field as a jobber of woolens and worsteds, died at his home in Bellaire, L. I., Aug. 16.

William T. Harris, aged 80, formerly an official of the West Cotton Textile Mills, Waxahachie, Tex., died recently.

Robert Chapman, former president of the Southern Yarn Spinners' Association, died Aug. 3 at Red Springs, N. C. He was formerly president of Marlboro Cotton Mills, McColl, S. C., of the Cheraw (S. C.) Cotton Mills and the Icemorlee Mills, Monroe, N. C.

Robert H. Dole, aged 39, vice-president and secretary of the Dodge-Davis Mfg. Co., Bristol, N. H., died on Aug. 27.

Otto E. Sward, aged 62, for 20 years head paymaster at Grosvenordale Co., North Grosvenordale, Conn., died suddenly Aug. 9 at Webster, Mass. He was associated with that company for 48 years.

George Utsman, aged 56, for the last ten years overseer at Eno Cotton Mills, Hillsboro, N. C., died recently.

T. J. McElhannon, aged 78, died recently at his home in Durham, N. C. He was the father of J. W. McElhannon, secretary and treasurer of Durham (N. C.) Cotton Mfg. Co.

James S. McCall, aged 18, textile worker at Piedmont (S. C.) Mfg. Co., was accidentally killed recently while rabbit hunting. He was the son of J. C. McCall, overseer of weaving.

John Goosetrey, aged 62, superintendent of dyeing, bleaching, and scouring, New York Mills Corp., Utica, N. Y., died in August. Born in Droylesden, England, he came to this country in 1892 and was for 20 years in charge of dyeing, bleaching, and scouring at Crompton Co., West Warwick, R. I.

E. M. Veenfliet, aged 82, former secretary and treasurer of the St. Mary's (Ohio) Woolen Mfg. Co., died recently at his home in that city following a long illness.

Sutton S. Lyseth, aged 61, general manager and treasurer of Lyseth Thread Co., Worcester, Mass., which he established in 1916, died recently.

Leonard Aitken, aged 63, for twenty years until about three years ago, general agent for the Lincoln Mills of Alabama, Huntsville, Ala., died suddenly near Orlando, Fla., Aug. 19. He contributed largely to the early development of Huntsville.

Elmer Ellsworth Harrington, aged 58, chief chemist and metallurgist for the Bausch Machine & Tool Co., Springfield, Mass., died in South Berwick, Me., Aug. 2.

Joseph Hill, aged 83, for many years overseer of the weaving department at the Salmon Falls Mfg. Co. and inventor of numerous weaving devices, died in Dover, N. H., recently.

Stuart W. Smith, aged 63, sales manager of the Parks-Cramer Co., Fitchburg, Mass., died of a heart attack on Aug. 10 at his home in that city.

Donald D. Mitchell, aged 48, an executive of Rossleigh Textile Co., New York, previously with Faulkner & Co., and 12 years ago superintendent of Cyril Johnson Woolen Co., Stafford Springs, Conn., died July 31.

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MILL NEWS

Cotton Mill News

Russell Mfg. Co., Alexander City, Ala., will change about 40,000 spindles in local mills to long-draft type and will make other improvements in equipment.

Lincoln Mills, largest of three textile plants in Huntsville, Ala., resumed operations Aug. 8 with a reduced force of employees.

Lowe Mills, Huntsville, Ala., idle for some time, have been acquired by new interests, headed by Walter Laxson, Jr., and Raymond Arnold, both of Huntsville, and will be converted for cotton warehouses.

Powdrell & Alexander, Inc., Danielson, Conn., reports net loss of $67,455 for the first half of 1938, compared with net profit of $203,197 for similar period of 1937.

Brooks Bros. (John and Malcolm), East Hampton, Conn., have acquired the dismantled mill of Franco-American Thread Co. and are equipping same for manufacture of fish nets.

Meritas Mills, Columbus, Ga.—Machinery and equipment at this plant has been sold at public auction to a number of purchasers.

Dalton, Ga.—Makers of chenille bedspreads in this vicinity which are increasing their facilities include: Cabin Crafts, Inc., Kenner, Brockman & Schloss, Patey Enterprises, Inc., Lawtex Corp., Mt. Alto Bedspread Co. (Calhoun), Chenille Spread & Mat Co. (Calhoun), M. W. Cannon Co. (Ringgold), Dellinger Bedspread Co. (Rome), Greentex Corp. (Salisburg, N. C.), and Colonial Coverlet Co. (Chattanooga, Tenn.).

United States Rubber Products, Inc., Stark unit, Hogansville, Ga., has purchased from the Dixie Spindle & Flyer Co., Charlotte, N. C., a Guillet overhauling system, complete for the carding, spinning, spooler and twister departments.

Summerville (Ga.) **Cotton Mill** bondholders have purchased the property for $170,000, the sale being under order of referee in bankruptcy.

Harlee Mfg. Co., Chicago, Ill., plans to move plant and offices to Fall River, Mass, where space is already occupied in the former Durfee Mills property, employing 1,500. About 500 additional workers will be required, according to Henry Hopkin, vice-president.

Marshall Field & Co., Chicago, reports net profit for first half of 1938 of $603,401 against $1,268,746 for similar period in 1937.

Pepperell Mfg. Co., Biddeford, Me., reports deficit of $1,796,000 for year ended June 30, compared with a net profit of $2,104,116 the year before.

Denim Mills, Inc., Boston, Mass., recently formed with capital of $100,000, have purchased the Columbian Mills of the Otis Co., Greenville, N. H., for $240,442. Plant contains 610 looms and 15,000 spindles. New owner plans early operation on denims and allied products. James B. Ames is president.

Pacific Mills, Boston, Mass., reports net loss of $2,246,963 for first half of 1938, compared with net profit of $1,097,537 for similar period of 1937. Net sales were $16,003,811 and $28,865,968 respectively.

Monarch Textile Corp., 206 Globe Mill Ave., Fall River, Mass., is making chenille bedspreads, bath mats and rugs.

Dartmouth Mill, New Bedford, Mass., is expected to reopen about Oct. 1, as a result of a loan of $300,000 received from the RFC. The new corporation will be known as Dartmouth Associates, Inc., and will be headed by Herbert M. Pepler, general manager of the former Dartmouth Mill.

Taber Mill, New Bedford, Mass., may be sold to a group of New York textile men planning to operate the plant as a rayon weaving mill. Plant has 1,500 looms and 50,000 spindles.

Lockport (N. Y.) **Cotton Batting Co., Inc.,** is considering rebuilding of two large warehouse units at mill, recently destroyed by fire, with loss estimated over $65,000.

McCampbell & Co., New York, reports net profit for first half of 1938 of $49,848 against $122,143 for similar period in 1937.

Cherryville (N. C.) **Mfg. Co.,** has been placed in hands of W. W. Glenn of Lincolnton, N. C., as permanent receiver to liquidate the plant's business.

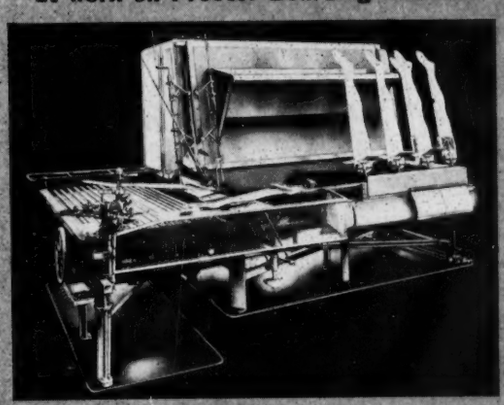
Minneola Mfg. Co., Gibsonville, N. C., has completed a modernization program, including new equipment. About $75,000 has been expended.

Cannon Mills Co., Kannapolis, N. C., has awarded contract to Saco-Lowell Shops, Boston, Mass., for changing

"I'M TIRED!"

(And That Means Slower Production)

Above—Boarders seated comfortably at work on Proctor Boarding Machine



Boarding equipment lacking provisions for the ease and comfort of the operators lacks those elements that assure high production and high quality. "Boarders" tire quickly on such machines. Quite a few operations are necessary and many of these operations are very strenuous. Production decreases . . . production costs, naturally, rise . . . and the boarder as well as the manufacturer is affected thereby. How different it is with the modern Proctor Automatic Boarding Machine where the comfort of the boarder has been so carefully considered in every phase of its design that output as high as two thousand, five hundred and forty-four pairs of women's stockings is possible *every hour* with the greatest of ease! And that production is coupled with the highest quality results. The features that make this production plus quality possible are described in detail in a new 24-page catalog that is yours for the asking. Write for it.

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MILL NEWS

about 200,000 spindles in different mills to long-draft type. On completion, all spindles at company mills will be long-draft operation.

Excell Mfg. Co., Lincolnton, N. C., following a receivership hearing, has been ordered dismantled and liquidated, with F. H. Chamberlain, Sr., named to sell the machinery.

Ada McLean Mills, Inc., Lumberton, N. C., have voted to discontinue operations at local cotton yarn mill, and property will be placed on the market.

Virginia Cotton Mills, Swepsonville, N. C., have begun the construction of a new span 550 feet long, across Haw River, replacing the section of the bridge recently washed away.

Jewell Cotton Mills, Thomasville, N. C., will replace their old type combers with new Saco-Lowell high production machines.

Joanna Cotton Mills, Goldville, S. C., have awarded contract to Saco-Lowell Shops, Boston, Mass., for change of 89,928 spindles at mill to long-draft type. Another order has been placed with the same company for nine one-process pickers of blending reserve type and accessory apparatus.

Cherokee Spinning Co., Knoxville, Tenn., has work under way on new one-story addition, to be used for warehouse.

Pacific Coast Linen Mills, Vancouver, Wash., are considering rebuilding section of mill and warehouse units, destroyed by fire with loss reported to exceed $200,000.

Wool Mill News

Bigelow - Sanford Carpet Co., Thompsonville, Conn., has a net loss of $1,565,223 for the first six months of 1938, compared with net income of $1,516,179 for corresponding period of 1937.

American Hair & Felt Co., Chicago, Ill., reports net loss of $356,893 for first half of 1938 against net profit of $249,357 for similar 1937 period.

Farr Alpaca Co., Holyoke, Mass., advises that the published report that Henry P. Kendall, of the Kendall Co., had been elected to the Farr Alpaca Co. board of directors was incorrect. The company states that Mr. Kendall has not been elected a director, although naturally they would be pleased to have him on the board. He has been acting in an advisory capacity only. It is further stated that the report that a Stockholders Protective Committee had been formed was also in error.

Hodges Carpet Co., Indian Orchard, Mass., is negotiating for an RFC loan of $175,000.

Puritan Mills, of American Woolen Co., Plymouth, Mass., have added 24 new automatic looms. It is proposed to add 48 more new looms with a payroll increase of 30%.

Amoskeag Industries, Inc., Manchester, N. H., are completing plans to operate part of the former worsted division of Amoskeag Mfg. Co., comprising Mill No. 10, and a number of adjoining buildings, totaling about 625,000 sq. ft., as Amoskeag Worsted, Inc. Property and equipment will be improved and financing is being arranged. It is expected to employ about 1000 persons and to start mill in November.

John Culbertson & Sons, Philadelphia, Pa. Machinery and equipment in worsted and woolen mill of this company, has been sold at a trustees' sale in bankruptcy.

Kraemer Woolens, Inc., is being organized in Stony Creek, Pa., to take over and operate the plant of the defunct Louis F. Kraemer & Co., Inc. Plant has been idle since January this year. New company is headed by Ray W. Spencer, Detroit woolen manufacturer, who purchased the plant from John J. McCloskey, of Collingswood, N. J., to whom it was recently sold at receiver's sale.

Black Bear Woolen Mill, Proctorville, Vt., owned by Dartmouth Woolen Co., Claremont, N. H., has been sold to Edward Krock, Worcester, Mass. Future plans have not been announced.

Rayon & Silk Mill News

Belding Heminway Co., Putnam, Conn., reports profits for first six months of 1938 of $144,184 against $355,027 in 1937.

Rayon Division, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., has approved plans for addition to mill at Ampthill, Va., and will build by day labor. This will make the fifth unit at the plant. Cost estimated close to $1,000,000, with equipment. Completion is scheduled early in 1939.

Federal Silk Mills, Inc., Williamsport, Md., have superstructure under way on one-

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SKF makes more types and sizes of ball and roller bearings than any other manufacturer in the world.

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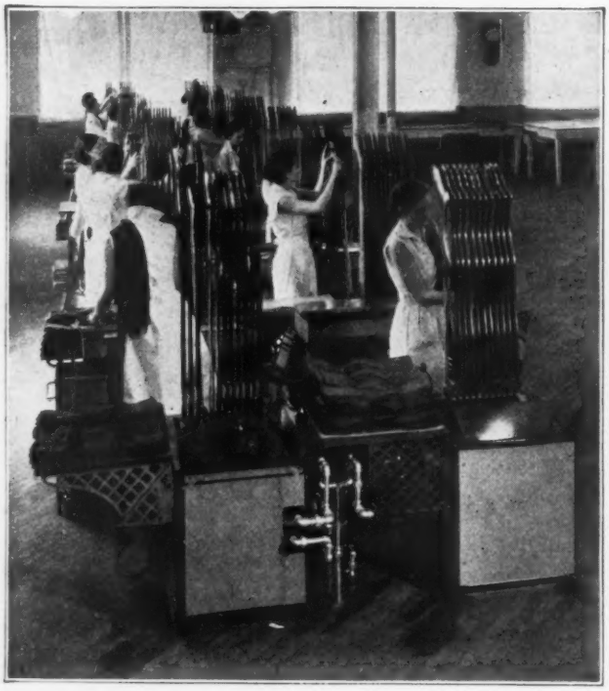
1000 DOZENS DAILY

HOSIERY FINISHING



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1. Less investment per dozen
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7. Simplicity and durability of construction

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PARAMOUNT TEXTILE MACHINERY CO.

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MILL NEWS

story addition, 65 x 120 ft. Equipment will be installed for increased capacity.

Northampton, Mass. George H. Goldenberg and associates have concluded negotiations for the purchase of the former Corticelli Mill No. 12 at Northampton from the Belding - Heminway - Corticelli Co., New York, and will occupy for production of woven labels.

Celanese Corp. of America, New York, reports net profit for fiscal year ended June 30, 1938 of $1,557,445.

Sidney Blumenthal & Co., New York, report net loss for second quarter of 1938 of $235,348 against net loss of $86,494 for same quarter in 1938.

Duplan Silk Corp., New York, reports net profit for fiscal year ended May 31, 1938, of $331,436 compared with $697,668 in previous period. Net sales were $10,172,000 against $12,058,000.

Ruco Textile Corp. has leased the Ogdensburg (N. Y.) Silk Mill and will reopen.

Grabur Silk Mills, Inc., Burlington, N. C., have general contract with C. M. Guest & Sons, Greensboro, N. C., for one-story addition, totaling about 35,000 sq. ft. Cost over $65,000, with equipment.

Burlington Mills, Greensboro, N. C., have work in progress on modernizing and improving the Premier Silk Mills, Inc., High Point, N. C., recently acquired. Old machinery is being removed and considerable new equipment installed. It will do throwing only. Plant was built in 1927 as Hillcrest Silk Co.

Rossmaessler Mill of Sauquoit Silk Mfg. Co., Bethlehem, Pa. Machinery and equipment has been sold at a public liquidation sale.

Walters & Goldberg have taken over the former Shindel Silk Co., Hughesville, Pa. Machinery is being installed and the mill will resume production early.

Teson Silk Mills, Inc., Riverside, Pa., have been purchased at sheriff's sale by Walter A. Hoffman, Danville, Pa., and associates, including one-story mill unit on 1½ acres of land, and equipment.

American Viscose Corp., New York, N. Y., has authorized immediate erection of large one and multi-story addition to branch mill at Nitro, W. Va., to be equipped for a yearly production of 20,000,000 lbs. of staple, doubling present mill capacity. It is reported to cost in excess of $1,000,000, with machinery, and is scheduled for completion next year.

Bernson Silk Mills, Inc., Buena Vista, Va., has filed petition in Federal court for authority to reorganize under section 77-B.

Knitting Mill News

Dothan (Ala.) **Hosiery Mills** has been established by the May Hosiery Mill, Burlington, N. C. About 25 full-fashioned machines have been installed. President is J. H. McEwen, who is also vice-president of McEwen Knitting Co., affiliated with May Hosiery Mill.

Athens (Ga.) **Hosiery Co.,** operated by Rodgers Hosiery Co., Philadelphia, Pa., has awarded general contract to Daniel Construction Co., Anderson, S. C., for one-story addition, 107 x 130 ft. Cost about $60,000, with equipment. Lockwood, Greene Engineers, Inc., New York, N. Y., are architects and engineers.

Previtt & Lester, Dallas, Ga., is a newly established plant with 16 knitting machines and auxiliary equipment for manufacture of rubber top slacks.

Douglas (Ga.) **Silk Products Co.,** silk hosiery, has completed installation of 15 new hosiery machines.

O'Shea Knitting Mills, Chicago, have moved to larger quarters at 2701 North Pulaski Road.

Chestertown (Md.) **Hosiery, Inc.,** has been incorporated by Herman S. Dersch, Russell H. McCullough and Hugh R. McCullough.

Lawrence Mfg. Co., Lowell, Mass., is discontinuing manufacture of underwear and this department will be converted for production of other lines of goods.

Barber Hosiery Mills, Inc., Mt. Airy, N. C., has completed construction of mill and installation of machines for manufacture of infants' and misses' anklets.

Wrenn Hosiery Co., Thomasville, N. C., is erecting a 50x100 ft. one-story brick addition, to be used as a dye and storage room.

Hattiesburg, Miss. Industrial Committee of Hattiesburg Chamber of Commerce, L.

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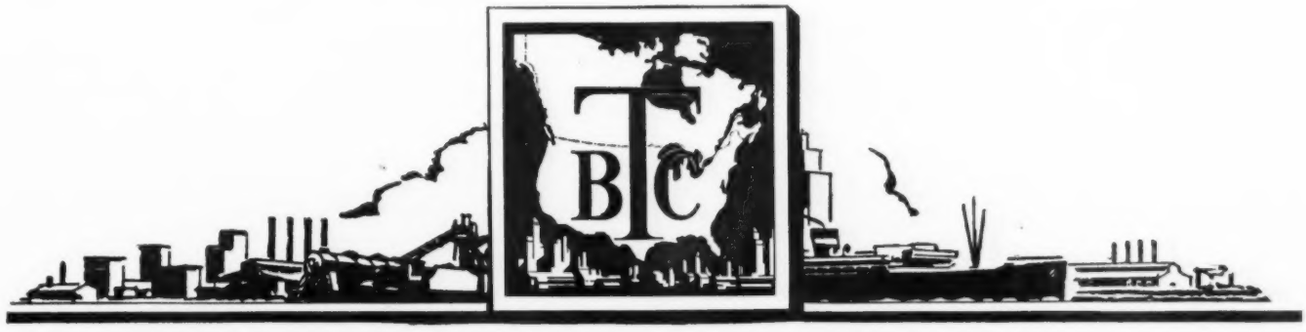

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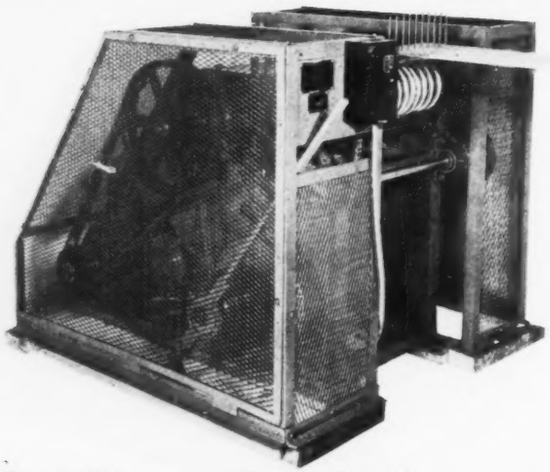
55 Madison Avenue, New York

Affiliated with Commercial Credit Company, Baltimore • Capital and Surplus Over $65,000,000

NEW ENGLAND REPRESENTATIVE: EDMUND H. LELAND, CHAMBER OF COMMERCE BUILDING, BOSTON, MASS.



Cut Rayon Staple Accurately

at the rate of 1000 pounds an hour. With this machine you can cut yarn *into any lengths* desired from 1/64th to 6 inches. Leading mills are using these machines for this work.

"LITTLE GIANT" CUTTERS

Are also extensively employed for cutting wool, jute, sisal, silk and other fibers for processing on wool or cotton machines.

Send sample for demonstration.

TAYLOR-STILES & CO.

Manufacturers of cutting machines since 1863

15 Bridge St. Riegelsville, N. J.

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WHITMAN *Yarns*

MONOMAC SPINNING CO.
LAWRENCE, MASS.

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NONQUITT MILLS
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TALLAPOOSA MILLS
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WILLIAM WHITMAN COMPANY, INC.

NEW YORK BOSTON PHILADELPHIA CHARLOTTE

MILL NEWS

E. Faulkner, chairman, is closing negotiations with a manufacturer of hosiery, name temporarily withheld, for establishment of a local mill. Municipality is arranging a bond issue of about $65,000 for erection of one-story plant, 50,000 sq. ft. of floor space. Initial installation, including 20 knitting machines, will cost over $350,000.

Gloray Knitting Mills, 372 Classon Ave., Brooklyn, N. Y., have acquired the Richland Knitting Mills, Inc., Penn Ave., Robesonia, Pa. Machinery from Brooklyn is being removed to the Robesonia plant.

L. E. Harrower & Son, Hagaman, N. Y., have filed petition to reorganize under 77B.

Julius Kayser & Co., New York, reports net profit of $119,470 for fiscal year ended June 30, 1938 compared with $917,986 in previous year.

Van Raalte Co., Inc., New York, reports net profit of $311,650 for first half of 1938 against $460,582 for first half of 1937.

Melrose Hosiery Mills, Asheboro, N. C., announce that the new full-fashioned department which recently began operations with four machines in place, will have all of the new machines operating about Nov. 1. These are Reading machines.

A. W. Wheeler & Son, Brevard, N. C., have acquired one-story industrial building on Caldwell St., and will modernize for new full-fashioned hosiery mill. About eight knitting machines and auxiliary equipment will be installed. George W. Wheeler is in charge.

Baker-Cammack Hosiery Mills, operating plants at Burlington, N. C., and Mebane, N. C., has purchased the machines and other equipment of the Penn Hosiery Mills of Burlington.

Rufus D. Wilson Full-Fashioned Hosiery Mill, Burlington, N. C., has constructed addition in which 20 machines have been installed. This new department, doubling previous capacity, got into production around Sept. 1.

S. Y. W. Hosiery Mills, Inc., Burlington, N.C. First National Bank of Burlington has foreclosed mortgage and has taken over mill on bid of about $250,000. Property has been placed on the market.

Hoover Hosiery Mill, concord, N. C., has purchased from Robert Reiner Co., Inc., Weehawken, N. J., one Einsiedel-Reiner heeling machine.

Ridgeview Hosiery Mill, Conover, N. C., is installing five new full-fashioned machines.

Thornton Knitting Co., Denton, N. C., has completed a modernization program, which included an addition, 64 x 100 ft., for new machinery. Total cost $50,000.

Fayetteville (N. C.) **Knitting Mills** have placed their second order for Einsiedel-Reiner machines with Robert Reiner, Inc., Weehawken, N. J., to be delivered within the next month or six weeks.

Elizabeth James Mill, No. 2, Marion, N. C., has been organized by Crawford F. James, with 15 full-fashioned machines as the initial machinery set-up and 15 additional machines to be added later.

Laughlin Full Fashioned Hosiery Mill, Randleman, N. C., will install 8 to 12 machines in its new building.

Fremont Hosiery Mills, Thomasville, N. C., have completed an addition which enlarges the storage department and the boarding room.

Francis - Louise Hosiery Mill, Valdese, N. C., has completed mill building and is installing machinery.

Gastonia (N. C.) **Full-Fashioned Hosiery Co.** has completed its mill building and begun installation of machinery.

Puritan Knitting Mills Corp., Altoona, Pa., has acquired additional building and will equip for increased capacity.

Woodland Hosiery Mills, Cheltenham, Pa., has placed an order with Robert Reiner, Inc., Weehawken, N. J., for additional "Combi" single unit machines.

Gold-Tex Hosiery Mills, Philadelphia, Pa., have filed notice of organization to operate mill at 1936 South 7th St. Company is headed by Isidor and David Stillman.

Integrity Hosiery Co., Philadelphia, Pa., has discontinued operations and gone out of business.

Empire Knitting Co., Philadelphia, Pa., has purchased a building in Statesville, N. C., and is moving its plant thither.

Selinsgrove (Pa.) **Knit-**

USEFUL FACTS ON STAINLESS STEEL FOR *Money Saving* TEXTILE EQUIPMENT!

The use of stainless steel solves two major problems that have long confronted textile manufacturers. One is the maintenance of expensive machinery operating under severe corrosive conditions. The other is the loss of textile material due to off-colors, stains, discoloration or product contamination.

Armco Stainless Steel is highly resistant to corrosion and attack by chemicals used in processing textiles. It extends the service life of costly equipment and reduces time lost for machine repairs. There is no danger of rust stain or discoloration. And since Armco Stainless has no chemical reaction with practically all dye solutions it makes possible faithful colors.

The smooth dense surface of Armco Stainless will not absorb dye stuffs. It can easily be cleaned for quick dye changes without boil-outs and the caustic, reducing, or oxidizing chemicals formerly needed for complete dye removal. This is a decided saving in itself.

Experienced Armco technical men will be glad to investigate and recommend the right grade of Armco Stainless for your special purpose. Because of the many different service conditions we cannot prescribe here the grade that will best serve your requirements, aside from these general recommendations.

BLEACHING AND DYEING SOLUTIONS

Two types of Armco Stainless are best suited to handling textile dye and bleach solutions. These are Armco 18-8 (Type 304) and Armco 18-12 SMo (Type 316). The 18-12 SMo grade offers more resistance to corrosive media, such as are encountered in wool carbonizing and acetic acid ageing.

WOOL DYEING

Armco 18-12 SMo is also recommended for wool dyeing equipment, because of the severely corrosive conditions. This alloy does not sadden acid and acid chrome dyes as do the copper alloys. Tints obtained with Armco 18-12 SMo equipment are identical to those obtained in a laboratory beaker.

COTTON, SILK, RAYON DYEING

Armco 18-8 Stainless Steel is well adapted for cotton dyeing. It has no effect on direct, vat, sulfur, or diazotized and developed colors. The sulfur colors do not produce the dark discoloration of metallic sulfides. Nor does the nitrous acid used in the diazotizing process attack Armco 18-8 Stainless. The metal is likewise unaffected by the alkaline and weak acid solutions encountered in silk and rayon dyeing. "Off colors" will not result from its use in handling equipment for this type of material.

DYEING MACHINES

Armco Stainless Steel is ideal for the dye box and tank, as well as for the roll and take-off reels. When big yardages of the same shade are being produced on continuous apparatus, Armco Stainless is recommended for the color solution tank.

In after-treatments of textiles Armco Stainless also has many applications. It can be used freely in the many different types of reel and strand machines. Solutions such as sodium bichromate with copper sulfate and acetic acid are best mixed in Armco Stainless equipment because of its corrosion resistance.

BLEACHING APPARATUS

Both Armco 18-12 SMo and Armco 18-8 offer many advantages in the bleaching process. Armco 18-12 SMo is better in the presence of chlorine and hypochlorite solutions, while Armco 18-8 is an excellent metal for use with peroxide solutions.

Cotton-rayon goods may be desized, washed, scoured, rinsed, bleached, washed, dyed, after-treated and washed again — all without changing machines. Silks likewise may be degummed, rinsed, bleached and dyed.

GENERAL DATA

There are so many profitable uses for Armco Stainless in the textile industry that it is difficult to list all. There is a proper grade for almost every application. Wherever there are corrosive reagents, or the possibility of injurious chemical reaction with sensitive dyes, the right grade should be determined by test and specified. Use it for all equipment that must safeguard quality and serve thriftily over the years. On specific applications consult our experienced metallurgists. Write direct to us or the nearest district office. The American Rolling Mill Co., Executive Offices, 2751 Curtis Street, Middletown, Ohio.

SOME USES FOR ARMCO STAINLESS

Ageing Equipment • Bleaching Equipment • Conveyor Belts • Drying Equipment • Extractors • Linings • Sinks • Baffle Plates • Fulling Machines • Buckets • Desizing Equipment • Sizing Machines • Dye Sticks • Rolls • Beakers • Carbonizing Equipment • Drying Cans • Evaporators • Kettles • Table Tops • Mixers

ARMCO

ARMCO STAINLESS STEELS

UNIFORM HIGH QUALITY
. . . at No Extra Cost

Ryerson certifies to the known uniform high quality of all steels in stock. Tighter, more accurate specifications—rigid inspection and checking—and years of preparation have built up stocks of these better steels. Ryerson Certified Alloy Steels are particularly outstanding. They are from selected heats that will give the best response to treatment. Special data sheets showing the chemical analysis, grain size, cleanliness rating, results of actual heat treatment tests, etc., are prepared. With every shipment, Ryerson sends this complete information. The heat treater has an accurate guide for quickly securing the best possible results. These special services are offered without increased cost or obligation. When you need steel, order from the nearest Ryerson plant. Immediate shipment is assured. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, St. Louis, Milwaukee, Cincinnati, Detroit, Philadelphia, Boston, Cleveland, Buffalo, Jersey City.

RYERSON *Certified* STEELS

Water Purification Plants

Designed — Constructed — Guaranteed

By

HUNGERFORD & TERRY, Inc.

CLAYTON, NEW JERSEY

Also **INVERSAND** Zeolite Softeners, Chemical Feeders, De-Oiling Filters and **BASEX** and **HI-BASEX** Greensand Zeolites

THE SINKER WITH THE HARDENED THROAT PATENTED AND THE HARD BUTT

GIVES YOU..

(NOT WEAKENED BY RIVETS)

ESS BREAKAGE
ONGER SERVICE
OWER OPERATING COST
ONGER UNIFORMITY OF PRODUCT

OUR RECONDITIONING SERVICE
Means Real Saving to You
IN Operating Time / Replacement Cost
If you are now a customer—you know this.
If you are not—a trial will convince you.
1119 East 23rd Street Indianapolis, Indiana

THOMAS & SKINNER

MILL NEWS

ting Mill has recently installed four more machines. There were previously six, and 12 more are to be installed.

West Lawn (Pa.) **Knitting Mills, Inc.,** has been organized to engage in manufacture of knit goods. Principals are Stanley Saurman, Thomas J. Cauley and Joseph P. Murray.

York, Pa. A group of about 400 former employes at mill of E. Sutro & Son Co., Inc., are arranging plans for purchase of property to operate as cooperative enterprise. Financing is being arranged through RFC.

United Hosiery Mills Corp., Chattanooga, report net loss of $8,135 for fiscal year ended June 30, 1938 against net profit of $19,296 for previous year.

Morris Hosiery Mills, Cleveland, Tenn., newly organized, are operating eight machines on anklets.

Traylor Corp. of Pennsylvania, silk hosiery, has leased a building at New Braunfels, Tex., and is installing machinery. F. J. Boyer and F. J. Boynton have charge of work. It is said to be sponsored by William F. Mueller Corp., Robesonia, Pa.

Belding Heminway Co. has registered to do business in Virginia, paying a fee of $2,520 based on capitalization of $50,000,000. Landon Lowry, Bedford, Va., is resident agent. The company is listed as a Connecticut corporation.

Oscar Nebel Co., Hatboro, Pa., on Sept. 1 reported plans to remove to Virginia, because unable to agree with union officials on a new contract.

Kenmore Hosiery Co., Fredericksburg, Va., has completed one-story addition and will install equipment at once.

Piedmont Knitting Co., Gordonsville, Va., with maximum capital of $25,000, has been chartered to operate a hosiery mill.

Carroll Silk Hosiery Mills, Inc., Hillsville, Va., completed mill building late in August. It cost $33,000. Machinery is being installed. T. J. Wallner of Pulaski, Va., is president.

Cranberry Mfg. Co., Hillsville, Va., will construct new power substation on a site near the hosiery mill.

Wytheville, Va. C. C. and Albert B. Carpenter are completing modernization of former plant of Inspiration Hosiery Mills, and will begin operations on men's hose. Both parties formerly operated Blue Ridge Hosiery Mill, Marion, N. C., recently sold to Albert C. Hewitt, Jr., and associates.

Allen-A Co., of Bennington, Vt., has completed its additional plant at New Ipswich, N. H.

Puget Sound Knitting Mills, Inc., 106 Columbia St., Seattle, Wash., plan rebuilding portion of mill recently damaged by fire, with loss of $25,000.

Processing Plant News

Robinson Top & Yarn Dye Works, Inc., 95 Bridge St., Lowell, Mass., has been organized with capital of $50,000. Ruddach P. Robinson is president and treasurer.

Brooklyn Yarn Dye Co., 2217 Neptune Ave., Brooklyn, N. Y., is installing two new boiler units and auxiliary equipment at plant, for which contract recently was let to the Godfrey Keeler Co., New York, N. Y. Installation will cost $70,000.

Cohoes (N. Y.) **Textile Printing Co.,** recently organized, has leased space in Mill No. 1, of the former Harmony Mills Co., and will equip at once.

Kerr Bleaching & Finishing Works, Inc., Concord, N. C., has completed installation of additional equipment, including a 60 in. Sanforizing machine, especially planned to handle draperies and slip cover fabrics.

McCauley Dye Works Co., Inc., Philadelphia, Pa. Machinery and equipment of this company has been sold at a trustee's sale in bankruptcy.

Cranston (R. I.) **Print Works** has installed two complete new Sanforizing units.

Arkwright Finishing Co., Providence, R. I., has begun erection of one-story addition to mill at Arkwright, near Fiskeville, R. I., estimated to cost $50,000, with equipment. Contract was let recently to J. F. McCusker, West Warwick, R. I. C. R. Makepeace & Co., Providence, are architects.

Fairforest Finishing Co., Spartanburg, S. C., reports net profit for first six months of 1938 of $68,448 against net profit of $62,309 for similar period in 1937.

NOW...A SOFTER "HAND" THAN EVER

WITH THE NEW

"Avitex" R

REG. U. S. PAT. OFF.

TAKE HOLD of a rayon or acetate finished with "Avitex" R and feel the full hand and silky softness of the fabric. "Avitex" R gives man-made fabrics a golden touch—makes them more salable because they're lovely to look at as well as to wear.

You can depend on this recently developed "Avitex" R to be stable under long storage conditions. It is resistant to hard water, hot ironing and calendering. It won't discolor fabrics—nor will it produce any undesirable odor. And it reduces static and improves the sewing characteristics of acetates.

"Avitex" R gives you finer finishing for rayon and acetate crepes—for yarns dyed in skein. Our nearest office will be glad to show you how you can use "Avitex" R to splendid advantage—without increasing your production costs in any way.

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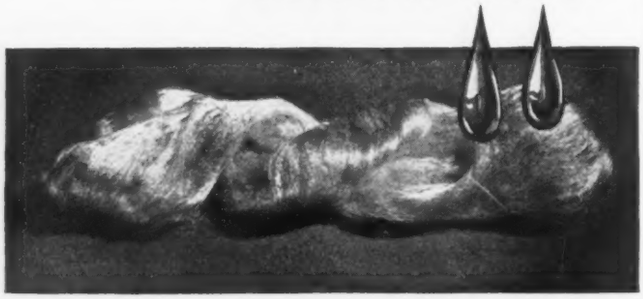
RAYON OILS



for Faster, Softer Yarns

LAUREL RAYON OILS give your yarns the protective coating that prevents abrasion and consequent breakage. Highly penetrating, Laurel Rayon Oils increase the strength of your yarns without stiffening . . . resulting in softer, faster yarns.

Laurel Rayon Oils, like the other Laurel Rayon Finishes have been developed by the Laurel Laboratory to meet the exacting requirements of rayon processing . . . they are practical, safe, workable. Write or call us about your rayon problem. We will gladly study it and make recommendations.

Laurel

SOAP MANUFACTURING COMPANY, Inc.

Wm. H. Bertolet's Sons Established 1909
2606 E. Tioga Street Philadelphia, Pa.
Warehouses: Paterson, N. J. Chattanooga, Tenn. Charlotte, N. C.

SUPPLIERS' NEWS

(Other items on pages 115 and 116)

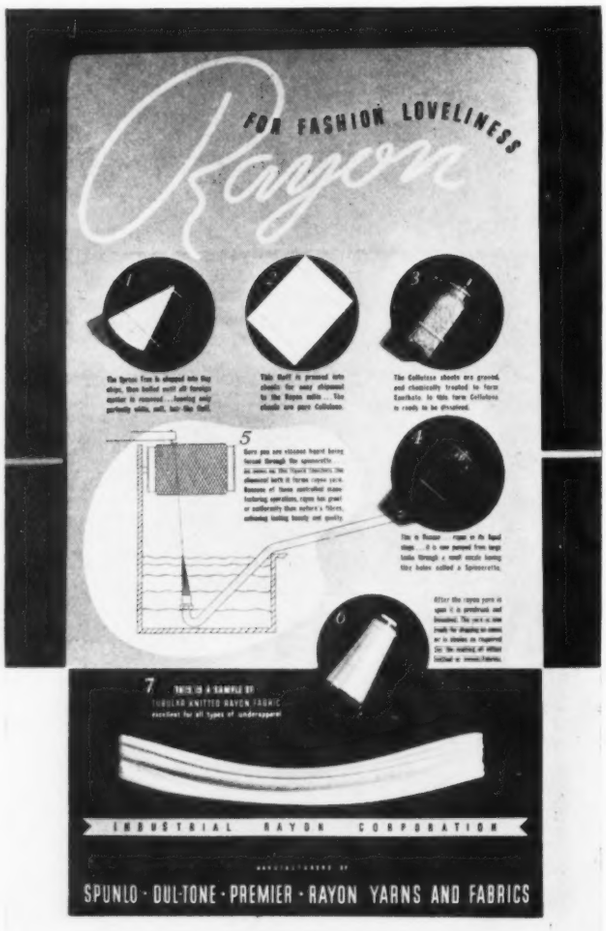
Howard Bros. Mfg. Co., card clothing, Worcester, Mass., has appointed Carl M. Moore as sales representative in the Carolinas with headquarters at Charlotte. He will work under Guy L. Melchor, Atlanta, the southern agent for the company. Mr. Moore has been superintendent of Piedmont (S. C.) Mfg. Co. J. Floyd Childs is sales representative for Georgia, Tennessee and Alabama.

Arnold, Hoffman & Co., Providence, R. I., have elected Thomas H. Roberts vice-president and technical director. He joined the company in 1926 as manager of the dye plant.

New York School of Textile Technology, 19 West 44th St., New York, opens for classes the week of Sept. 12. The director is Constant Scholer, until recently chief technician of National Silk Spinning Co.

Morse Chain Co., Ithaca, N. Y., has appointed Arthur F. Weston manager of the Chicago office. Mr. Weston was formerly in charge of the Cincinnati office. Wm. C. Gilbert, formerly of the Detroit office, has been transferred to Chicago. C. A. Shetter, formerly manager of the Cleveland office, becomes manager of the Cincinnati branch. Lon Sloan, formerly special development engineer at Chicago, becomes manager of the Cleveland office.

Pomona Pump Co., Pomona, Calif., through George A. McKenna, president and general manager, has announced personnel changes as follows: D. C. McKenna becomes vice-president and secretary-treasurer; Jule H. Coffey vice-president in charge of sales; Claude C. Cook, formerly in charge of St. Louis plant, comes to Pomona as vice-president in charge of manufacturing; Charles L. Barrett has been named general sales manager; R. D. Schott, chief engineer; Barclay Mackinnon, comptroller; I. A. Oliver continues as consulting engineer.



This novel type of rayon display built to stand on counters or ledges, has been developed by Industrial Rayon Corp., Cleveland, O., for distribution to stores. The display tells rayon's history from spruce tree to fabric. The rods projecting on both sides serve as supports for the display of rayon underwear garments from the store's stocks.